The Parker Service Master Easy

Bedienungsanleitung
Operating instructions
Mode d'emploi
Istruzioni per l'uso
Instrucciones para el manejo

Vorwort

Revisionsverlauf

Version	Datum	Änderung
1.0	12/2006	Erstausgabe

Kontaktadresse

Parker Hannifin GmbH & Co. KG
Tube Fittings Division Europe
Postfach 12 02 06, 33652 Bielefeld
Am Metallwerk 9, 33659 Bielefeld
Telefon +49 521/40 48-0
Fax +49 521/40 48-42 80
E-Mail: Ermeto@parker.com
http://www.parker.com

DEUTSCH

Inhalt

Vorwort 3

Revisionsverlauf 3

1. Sicherheitshinweise/Produktauswahl 7

1.1 Bestimmungsgemäßer Gebrauch 7
1.2 Fachpersonal 7
1.3 Richtigkeit technische Dokumentation 7
1.4 Hochdruckanwendungen 7
1.5 Service/Reparatur 8
1.6 Hinweise zur Entsorgung 8

2. Geräteversion/Lieferumfang 10

3. Inbetriebnahme 11

3.1 Laden der Akkus/Batteriezustandsanzeige 11
3.2 Batteriewechsel 11

4. Tasten und Funktionen 12

4.1 Symbolik und Bedienung der Menüs 14

5. Anschluss der Sensoren/Displayfunktionen 16

5.1 Anzeigeformat (DISP) 17
5.2 Displaykonfiguration (LINE) 18
5.3 Nullpunktabgleich (ZERO) 19
5.4 MIN/MAX-Werte löschen (RESET) 20
5.5 Differenzwertanzeige 20
5.6 Differenzwertabgleich (IN1=IN2) 21
5.7 Anschluss von Fremdsensoren (SET AUX. SENSOR) 23
5.8 Fehlermeldungen/Warnungen 26

6. Geräteeinstellungen (SET) 28
6.1 Einstellung der Einheiten (SET-UNIT) 30
6.2 Automatische Abschaltung (SET-AUTO POWER) 30
6.3 Einstellung von Fremdsensoren (SET-AUX. SENSOR) 30
6.4 Anzeige definierter Messaufgaben (SET-PROJECT) 31
6.5 Einstellung Kontrast (SET-CONTRAST) 32
6.6 Einstellung Uhr/Datum (SET-TIME/DATE) 32
6.7 Anzeige der Geräteversion (SET-VERSION) 32
6.8 Werkseinstellung (USER RESET) 33

7. Konfiguration des Messwertspeichers (MEMORY SET) 34
7.1 Messwertspeicher löschen (MEM-DELETE MEMORY) 36
7.2 Einstellung Datenformat (MEM-DATA FORMAT) 36
7.3 Einstellung Aufnahme Format (MEM-REC-CONFIG) 37

8. Das Menü REC 38

9. Messwertspeicherung 40
9.1 Einstellungen für die Messwertspeicherung (REC) 40
9.2 Die Einstellung REC NAMES 41

10. Einstellung und Bedienung am PC 54
10.1 Anschluss an den PC 54
10.2 Bedienung/Konfiguration vom PC 55

11. Zubehör 56

12. Technische Daten 57

13. Beschreibung der Speicherfunktionen 59

1. Sicherheitshinweise/Produktauswahl

1.1 Bestimmungsgemäßer Gebrauch

Das Gerät ist nur für die in der Bedienungsanleitung beschriebenen Anwendungen bestimmt. Eine andere Verwendung ist unzulässig und kann zu Unfällen oder Zerstörung des Gerätes führen. Diese Anwendungen führen zu einem sofortigen Erlöschen jeglicher Garantie- und Gewährleistungsansprüche gegenüber dem Hersteller.

Ein Einsatz des ausgewählten Produktes außerhalb der Spezifikation oder Missachtung der Bedien- und Warnhinweise können zu folgenschweren Fehlfunktionen derart führen, dass Personen bzw. Sachschaden entstehen kann.

1.2 Fachpersonal

Diese Bedienungsanleitung wendet sich an ausgebildetes Fachpersonal, das sich mit den geltenden Bestimmungen und Normen des Verwendungsbereichs auskennt.

1.3 Richtigkeit technische Dokumentation

Diese Bedienungsanleitung wurde mit großer Sorgfalt erstellt. Für die Richtigkeit und Vollständigkeit der Daten, Abbildungen und Zeichnungen wird keine Gewähr übernommen. Änderungen vorbehalten.

1.4 Hochdruckanwendungen

Auswahl

Bei der Auswahl von Druckelementen sollte der Überlastdruck nicht überschritten werden.

Bei Überschreiten des Überlastdruckes kann (je nach Länge/Häufigkeit und Höhe der Druckspitze) eine mechanische Deformation der Druckzelle erfolgen.

Bei Lufteinschlüssen können durch den „Dieseleffekt“ Druckspitzen entstehen, die den Überlastdruck weit übersteigen können. Der Nenndruck des Druckelementes sollte oberhalb des Nenndruckes in dem zu messenden System liegen.

Montage
Bitte befolgen Sie die Hinweise und beachten Sie die richtigen Anzugsmomente für eingesetzte Verschraubungen oder Adapter.
Anschlussgewinde: ½" BSP = 90 Nm
¼" BSP = 30 Nm

Für Hydraulikverschraubungen (ERMETO) oder Hydraulikschläuche von Parker Hannifin beachten Sie bitte die in den Katalogen angegebenen Höchstdrücke.

1.5 Service/Reparatur

Für Reparatur oder Kalibrierung der Messgeräte wenden Sie sich bitte an eine Parker Hannifin Verkaufsniederlassung.

1.6 Hinweise zur Entsorgung

Recycling nach WEEE

Mit dem Erwerb unseres Produktes haben Sie die Möglichkeit, das Gerät nach Ende seines Lebenszyklus an Parker Hannifin zurückzugeben.

Die WEEE (EU-Richtlinie 2002/96 EG) regelt die Rücknahme und das Recycling von Elektroaltgeräten.
Im B2B-Bereich (Business to Business) sind die Hersteller von Elektrogeräten ab dem 13.8.2005 dazu verpflichtet, Elektrogeräte die nach diesem Datum verkauft werden, kostenfrei zurückzunehmen und zu recyceln. Elektrogeräte dürfen dann nicht mehr in die „normalen“ Abfallströme eingebracht werden. Elektrogeräte sind separat zu recyceln und zu entsorgen. Alle Geräte, die unter diese Richtlinie fallen, sind mit diesem Logo gekennzeichnet:

Was können wir für Sie tun?

Parker Hannifin bietet Ihnen darum eine kostenneutrale Möglichkeit Ihr altes Gerät an uns abzugeben. Parker Hannifin wird dann Ihr Gerät, nach der aktuellen Gesetzeslage, fachgerecht recyceln und entsorgen.

Was müssen Sie tun?

Nachdem Ihr Gerät sein Lebensende erreicht hat, senden Sie es einfach per Parcelservice (im Karton) an die Parker Hannifin Verkaufsniederlassung, welche Sie betreut, wir übernehmen dann alle anfallenden Recycling- und Entsorgungsmaßnahmen. Ihnen entstehen dadurch keine Kosten und Unannehmlichkeiten.

Weitere Fragen?

Bei weiteren Fragen, kontaktieren Sie uns, oder besuchen Sie uns unter www.parker.com

2. Geräteversion/Lieferumfang

Das Messgerät und die Sensoren ermöglichen dem Anwender die Messung aller relevanten Parameter in einem Hydraulik-System.

Parameter:

- [bar/psi] Druck, Δp (Load-Sensing-Pumpen)
- [°C/°F] Temperatur
- [L/min/G/min] (U.S) Volumenstrom
- RPM [1/min]

Das Messgerät ist durch die automatische Sensor-Erkennung einfach zu bedienen. Es sind keine weiteren Einstellungen am Messgerät notwendig.

Plug & Work ist eine der wichtigsten Geräteeigenschaften. Dadurch ist das Messgerät sofort betriebsbereit und Fehlmessungen sind ausgeschlossen.

3. Inbetriebnahme

Das Messgerät wird werkseitig mit eingesetzten wiederaufladbaren Batterien ausgeliefert.

Vor der ersten Inbetriebnahme den Akku mindestens 3 Stunden aufladen. Anschließend ist das Messgerät betriebsbereit.

3.1 Laden der Akkus/Batteriezustandsanzeige

Wenn die Batteriekapazität zu gering ist, blinkt das Batteriesymbol und das Messgerät wird automatisch ausgeschaltet.

Batteriesymbol

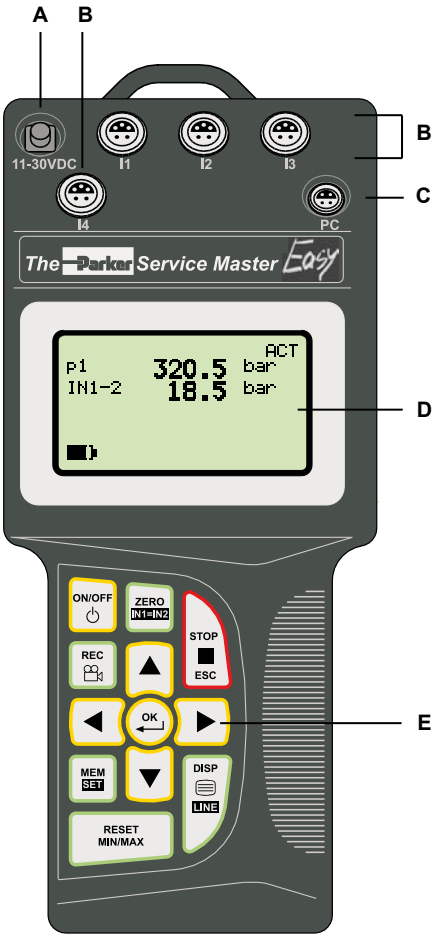
Das Messgerät wird mit dem externen Netzteil oder dem Kfz-Adapter betrieben. Die Batterie kann direkt geladen werden. Sobald das Netzteil angeschlossen ist, beginnt der Ladevorgang.

► Informationen zum externen Netzteil und dem Kfz-Adapter finden Sie im Kapitel „Zubehör“.

3.2 Batteriewechsel

Batteriewechsel

4. Tasten und Funktionen



A **11-30 VDC**
Netzgerät
110/220 VAC-15 VDC

Kfz-Adapter
12/24 VDC

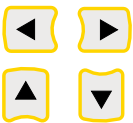
B **I1 . . I4**
Anschluss Sensoren

C **PC (USB)**

D **Anzeige (Display)**

E **Tastatur**

Funktionstasten

	EIN/AUS
	Bestätigung Funktion/Wert
	**Auswahl** der Funktion/Wert
	STOP/ESC

Menütasten

* Diese Menütasten sind doppelt belegt:
Auswahl 1. Menüebene = 1 x kurz drücken
Auswahl 2. Menüebene (schwarz hinterlegt) = 1 x lang drücken (2 s)

	ZERO **IN1 = IN2**	Nullpunktabgleich Differenzwertabgleich	*
	MEM **SET**	Speicherkonfiguration Hauptmenü (Geräteeinstellungen)	*
	DISP **LINE**	MIN-MAX/IST oder FS Anzeige Displaykonfiguration	*
	REC	Messwertspeicherung	
	Löschen der MIN/MAX Werte		

4.1 Symbolik und Bedienung der Menüs

Wenn hinter einer Menüfunktion das Zeichen „>“ angezeigt wird, führt die Taste OK in ein weiteres Untermenü.
Wird das Zeichen „:“ angezeigt, bestätigt man mit der Taste OK den jeweiligen Eintrag.

Menü-symbol	Taste	Funktion	Beispiel
>		Aufruf eines Untermenüs/Einstellung	UNIT>
:		Bestätigung	AUTO POWER: OFF
▲ ▼		Anwahl/Auswahl	--SET--

Die Belegung der Tasten und die Symbolik hinter den Menüfunktionen sind allgemein gültig und werden im Folgenden nicht mehr explizit erklärt.

Wirkung der Funktionstasten innerhalb der Menüs

Bietet ein Fenster bzw. ein Menü mehrere Funktionen, werden diese immer mit den Pfeiltasten angewählt. Die Pfeiltasten bewegen den Cursor entsprechend der Pfeilrichtung.

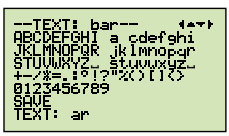
Jede Anwahl einer Funktion oder eines Untermenüs muss mit OK bestätigt werden, jede Änderung oder Eingabe von Werten muss mit OK bestätigt werden. Mit OK speichern Sie sämtliche Einstellungen. Wollen Sie ein Menü verlassen oder die Eingabe nicht speichern, verwenden Sie immer die Taste STOP/ESC. Die Belegung und Wirkungsweise dieser drei Tasten ist immer gleich, egal in welchem Menü Sie sich befinden.

Aufgrund der leicht verständlichen und immer gleichen Wirkungsweise der Funktionstasten ist auf die Setzung der Tasten bei den Beispielabläufen bewusst verzichtet worden, damit der Inhalt der Menüs im Zentrum der Darstellung bleibt. Die Nachahmung der Beispiele setzt die Betätigung der Funktionstasten, wie beschrieben, voraus.

Beispiel Einstellung der Einheit (Text) und des Messbereichs (Zahlen) bei Fremdsensoren.

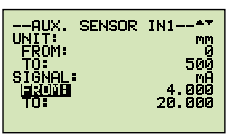
Texteingabe:

Zur Einstellung der Einheiten (maximal 15 Zeichen)



Zahleneingabe:

Zur Einstellung des Messbereichs und der Signalspanne

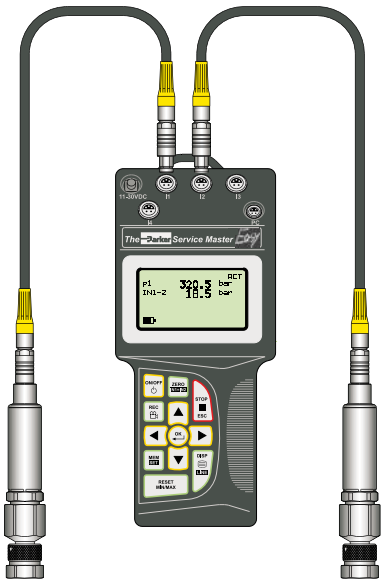


5. Anschluss der Sensoren/Displayfunktionen

Um elektrische Störeinflüsse zu vermeiden, beachten Sie bitte folgende Schritte:

1 Sensor mit dem Anschlusskabel an das Messgerät anschließen.

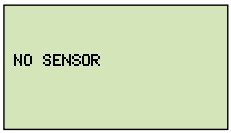
2 Messgerät einschalten.



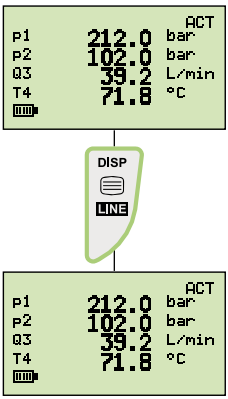
Messgerät mit zwei Drucksensoren

- Nach dem Einschalten werden alle Messwerte im Display angezeigt.
- Durch die automatische Sensorerkennung erscheint der Messwert mit der richtigen Einheit im Display.
- Es brauchen keine weiteren Einstellungen am Gerät vorgenommen zu werden.

- Wenn kein Sensor am Gerät angeschlossen ist, erscheint folgende Meldung:



5.1 Anzeigeformat (DISP)



DISP drücken (kurz)

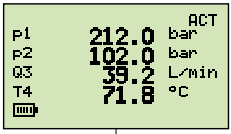
Die Display-Anzeige kann mit **DISP** (kurz drücken) umgeschaltet werden.

Wählbar:

ACT = Istwerte
MIN = Minimalwerte
MAX = Maximalwerte (Druckspitze)
FS = FullScale (Messbereichsendwert)
TEMP = Temperaturanzeige

Die Anzeige **TEMP** gilt nur für Sensoren des Typs „SCPT“.

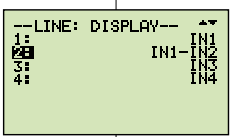
5.2 Displaykonfiguration (LINE)



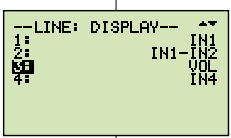
LINE drücken (2 s)

Line:

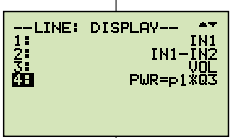
1: keine Einstellung möglich, nicht wählbar



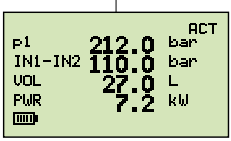
2: Wählbar:
Differenz (IN1 - IN2)
Addition (IN1 + IN2)



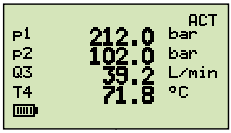
3: **Volumen** VOL= Q3 x time



4: Wählbar:
Power
PWR1 = p1 x Q3
PWR2 = (p1-p2) x Q3



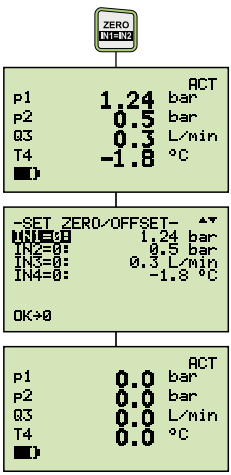
5.3 Nullpunktabgleich (ZERO)

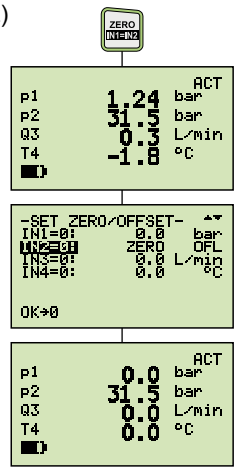


Sind die Abgleichwerte innerhalb der zulässigen Toleranz (2 % von FS), werden die Werte zu Null gesetzt.

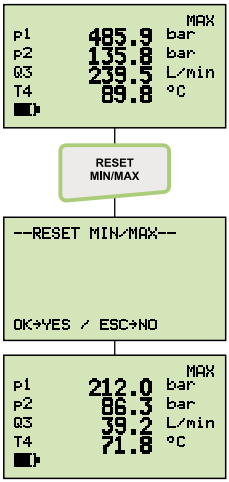
Sind die Abgleichwerte außerhalb der zulässigen Toleranz (2 % von FS), erscheint: ZERO OFL.

ZERO drücken (kurz)





5.4 MIN/MAX-Werte löschen (RESET)



Anzeige der bis jetzt gemessenen MAX-Werte.

MAX-Werte werden gelöscht.

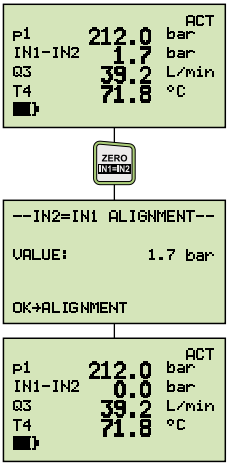
In der MAX-Anzeige erscheinen die aktualisierten MAX-Werte.

Beispiel: Druckabfall im Hydrauliksystem

5.5 Differenzwertanzeige

► Die Einstellung IN1 – IN2 sind im Kapitel „Displaykonfiguration (LINE)“ beschrieben.

5.6 Differenzwertabgleich (IN1=IN2)



IN1=IN2 drücken (2 s)

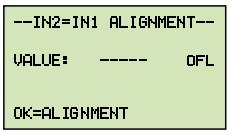
Der Differenzwertabgleich ist unter Betriebsdruck durchzuführen. Montieren Sie zwei Drucksensoren am gleichen Anschluss (T-Adapter). Die Toleranz der Sensoren zueinander wird durch den ∆p-Abgleich auf Null gesetzt.

Diese Einstellung bleibt gespeichert und ist nur für den jeweiligen Betriebsdruck gültig.

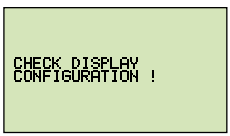
Drei Fehlermeldungen sind möglich zu IN1=IN2:

1 Abgleichwerte außerhalb zulässiger Toleranz:

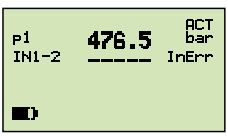
- Bei Sensoren mit automatischer Sensorerkennung 5 % des Messbereichendwerts (FS)
- Bei Fremdsensoren 10 % des Messbereichendwerts (FS)



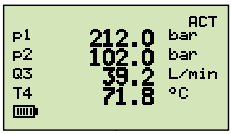
2 IN1 - IN2 ist nicht konfiguriert (DISP-LINE):



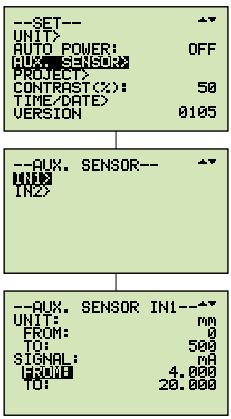
3 Messgrößen sind nicht gleich (IN1=bar/IN2=L/min)



5.7 Anschluss von Fremdsensoren (SET AUX. SENSOR)



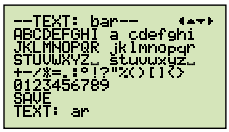
SET drücken (2 s)



Die elektrische Spezifikation der Fremdsensoren muss mit dem Messgerät/Adapter kompatibel sein. Bitte achten Sie auf die richtige PIN Belegung, Versorgungsspannung und vermeiden Sie elektrische Kurzschlüsse!

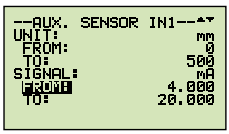
Texteingabe UNIT/SIGNAL

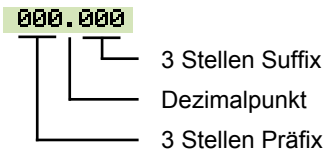
Zur Einstellung der Einheiten (maximal 15 Zeichen).



Zahleneingabe FROM/TO

Zur Einstellung des Messbereichs und der Signalspanne:
3 Ziffern Präfix, Dezimalpunkt, 3 Ziffern Suffix.

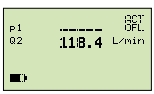
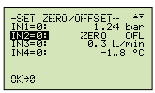
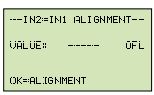
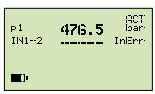


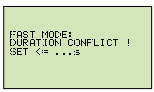
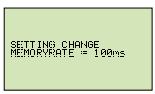


Anschluss Fremdsensoren:

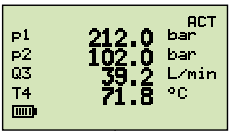
Messgerät mit Anschlussadapter und Sensoren für Weg (mm) und Kraft (kN).

5.8 Fehlermeldungen/Warnungen

Anzeige	Beschreibung	Was ist zu tun?
	Es ist kein Sensor angeschlossen	Messgerät ausschalten Sensoren anschließen Messgerät einschalten
%	Ein Fremdsensor ist angeschlossen.	Im Menü SET- AUX.SENSOR die Einstellungen vornehmen
	Die Sensorerkennung ist unterbrochen (Kabelbruch oder Input defekt).	Messgerät, Sensor und Anschlusskabel an Parker Hannifin senden
	Overflow Messbereich Der gemessene Druck ist außerhalb des Messbereichs	System drucklos schalten Sensor mit größerem Messbereich verwenden
	Overflow ZERO Der Nullpunktabgleichwert ist außerhalb der Toleranz	Nur im drucklosen Zustand prüfen
	Overflow IN1 = IN2 Differenzwertabgleich Der Abgleichwert ist außerhalb der Toleranz	Systemdruck prüfen Sensoren mit größerem Messbereich verwenden
	DISP LINE IN1 = IN2 Falsche Einstellung	IN1-IN2 konfigurieren
	Overflow IN1 - IN2: Differenzwertabgleich Falscher Sensor	Messgrößen (Sensoren) müssen gleich sein IN1 / IN2 = bar IN1 / IN2 = L/min IN1 / IN2 = °C
	Messwertspeicher voll	Messwerte auf den PC herunterladen Messwertspeicher löschen

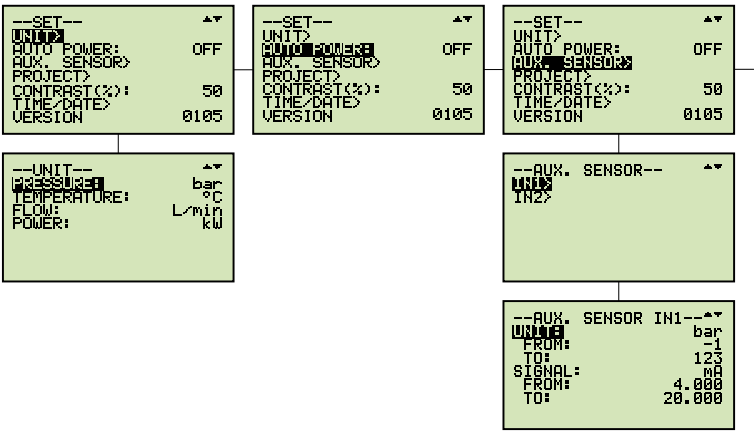
Anzeige	Beschreibung	Was ist zu tun?
	Nicht im FAST MODE anzuwenden	Einstellung REC: START-STOP/POINT FAST MODE nur für AUTO TRIGGER MANUAL möglich
	Konflikt Speicherzeit (DURATION) FAST MODE (0,5 ms)	Einstellung REC AUTO TRIGGER MANUAL Speicherzeit DURATION ändern
	Konflikt Speicherzeit (REC RATE)	Einstellung MEM-SET REC CONFIG REC RATE Speicherintervall REC RATE ändern. Bestätigung mit OK

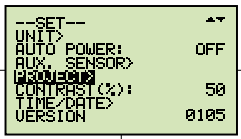
6. Geräteeinstellungen (SET)

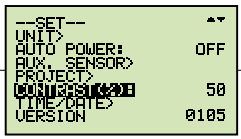


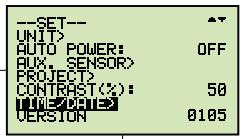
MEM SET

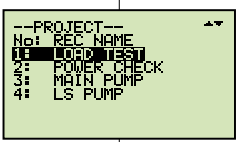
SET drücken (2 s)

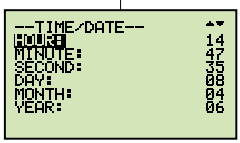


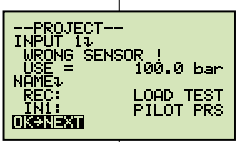

--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105

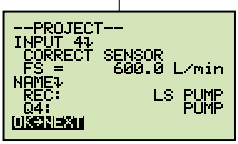

--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105


--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105

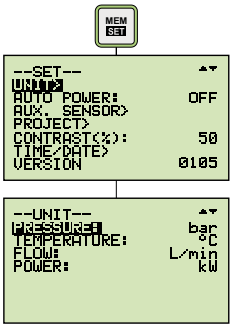

--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP


--TIME/DATE--
HOUR: 14
MINUTE: 47
SECOND: 35
DAY: 08
MONTH: 04
YEAR: 06


--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
IN1: PILOT PRS
OK→NEXT


--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK→NEXT

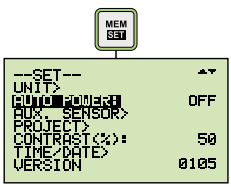
6.1 Einstellung der Einheiten (SET-UNIT)



Wählbar:

PRESSURE: bar, mbar, psi, MPa, kPa
TEMPERATURE: °C, °F
FLOW: L/min, G/min (US)
POWER: kW, HP (US)

6.2 Automatische Abschaltung (SET-AUTO POWER)



Wählbar:

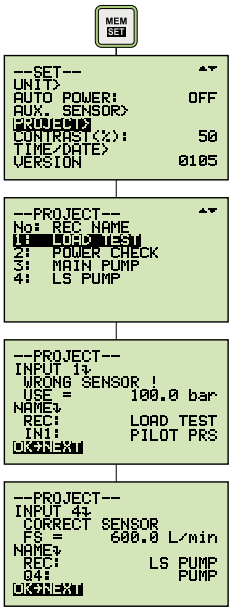
AUTO POWER: OFF, ON

6.3 Einstellung von Fremdsensoren (SET-AUX. SENSOR)

► Weitere Informationen finden Sie im Kapitel „Anschluss von Fremdsensoren“.

6.4 Anzeige definierter Messaufgaben (SET-PROJECT)

In der PC-Software können bis zu fünf verschiedene Messaufgaben (PROJECT) konfiguriert werden. Für jeden Input werden bestimmte Sensoren vordefiniert. Diese Definitionen können in SET-PROJECT abgefragt werden.

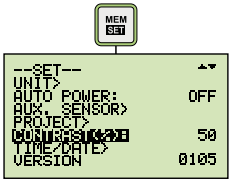


Input 1
Falscher Sensor angeschlossen!
Bitte Messbereich 100 bar benutzen.

Input 4
Richtiger Sensor angeschlossen
FS = 600 L/min

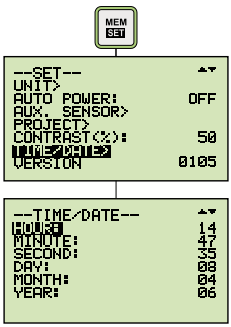
Eine Änderung dieser Einstellung ist nur mit der PC-Software möglich.

6.5 Einstellung Kontrast (SET-CONTRAST)



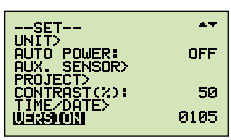
	Wählbar:
CONTRAST:	10 . . 100 %

6.6 Einstellung Uhr/Datum (SET-TIME/DATE)



	Wählbar:
HOUR:	0 . . 23
MINUTE:	0 . . 59
SECOND:	0 . . 59
DAY:	1 . . 31
MONTH:	1 . . 12
YEAR:	1 . . 99

6.7 Anzeige der Geräteversion (SET-VERSION)



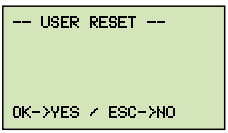
6.8 Werkseinstellung (USER RESET)

Um das Messgerät auf die Werkseinstellungen zurückzusetzen, gehen Sie bitte wie folgt vor:

1 Messgerät ausschalten.

2 Taste MEM-SET drücken und halten.

3 Taste ON/OFF drücken.



4 USER RESET mit OK bestätigen

7. Konfiguration des Messwertspeichers (MEMORY SET)

Folgende Einstellungen werden vorgenommen:

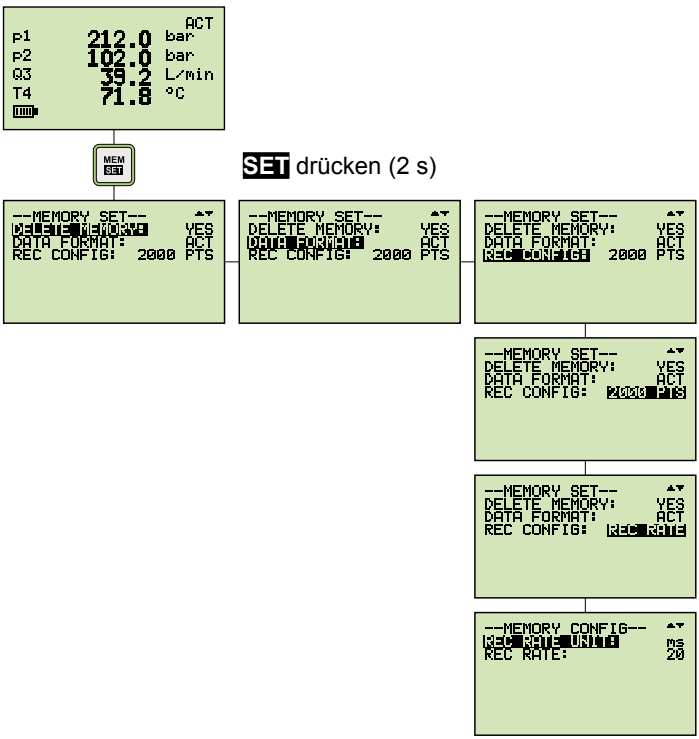
- Messwertspeicher löschen
- Datenformat der Messwerte konfigurieren
- Speicherintervalle konfigurieren

Menü	Einstellung/ Vorwahl	Beispiel	Bemerkung
DELETE MEMORY:	YES, NO	YES	Löschen des Messwert-speichers
DATA FORMAT:	ACT MIN-MAX	ACT	Datenformat der Mess-werte **ACT =** Speichern der Istwerte **MIN-MAX =** Speichern der MIN-MAX-Werte
REC CON-FIG:	REC RATE 2.000 PTS	2.000 PTS	**REC RATE =** Einstellung eines individu-ellen Speicherintervalls **2.000 PTS =** Aufteilung der Speicherzeit in 2.000 Speicherintervalle
REC RATE UNIT:	ms, s, h	ms	Vorwahl der Zeiteinheit (Speicherintervall)
REC RATE:	Zahl	20	Einstellung 20 ms

Werden ACT-Werte definiert, so können gegebenenfalls wichtige Messwerte nicht gespeichert werden, wenn das Speicherintervall zu groß gewählt wird.

Beispiel:

Bei einem Speicherintervall von 200 Millisekunden werden keine dynamischen MIN-MAX-Werte gespeichert. Daher ist bei dynamischen Messungen (Druckspitzen) die Einstellung MIN-MAX zu empfehlen.



7.1 Messwertspeicher löschen (MEM-DELETE MEMORY)

MEM SET drücken (kurz).

	Wählbar:
DELETE MEMORY:	YES/NO

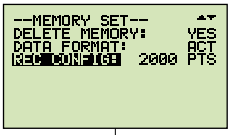
Durch Bestätigen mit der Taste OK wird der Messwertspeicher gelöscht.

7.2 Einstellung Datenformat (MEM-DATA FORMAT)

	Wählbar:
DATA FORMAT:	ACT MIN/MAX FAST

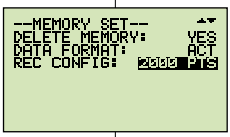
In der Einstellung FAST wird auf IN1 mit einem Speicherintervall von 0,5 ms gemessen und gespeichert.

7.3 Einstellung Aufnahme Format (MEM-REC-CONFIG)



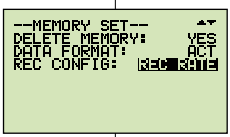
REC CONFIG

Es können zwei verschiedene Formate eingestellt werden:



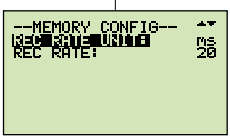
a. Format 2.000 PTS

Die Messkurven werden mit einer Auflösung von 2.000 Intervallen (Punkten) gespeichert.



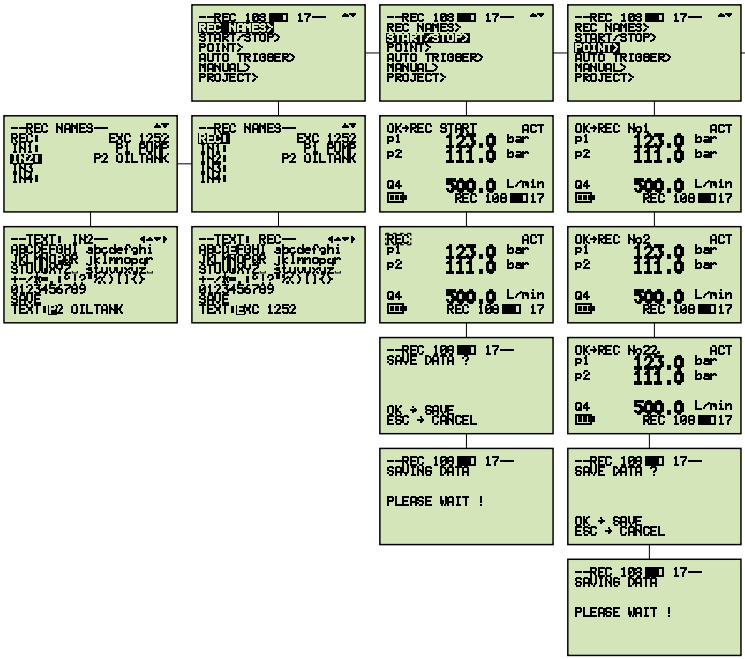
b. Format REC RATE

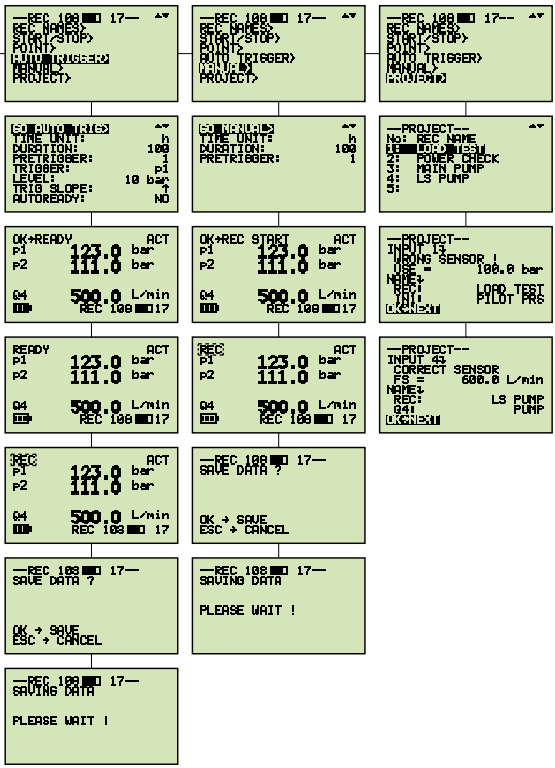
Die Messkurven werden mit einem definierten Intervall gespeichert.



Beispiel: 20 ms

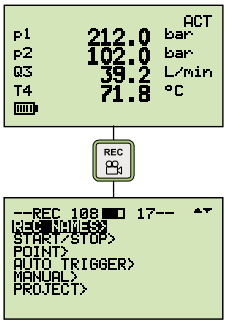
8. Das Menü REC




REC 100 17
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
PROJECT
No: REC NAME
1: POWER CHECK
2: MAIN PUMP
3: LS PUMP
4:
5:
OK+READY
OK+REC START
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
READY
REC
ACT
INPUT p1
WRONG SENSOR !
USE = 100.0 bar
MORE>
REC!
LOAD TEST
YOU!
PILOT PRS
OK+NEXT
INPUT Q4
CORRECT SENSOR
FS = 600.0 L/min
REC!
LS PUMP
Q4!
PUMP
SAVE DATA ?
OK → SAVE
ESC → CANCEL
SAVING DATA
PLEASE WAIT !

9. Messwertspeicherung

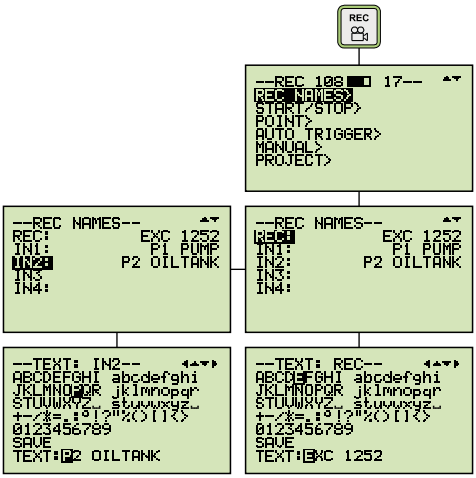
9.1 Einstellungen für die Messwertspeicherung (REC)



In der Kopfleiste werden folgende Parameter angezeigt:

REC 108	Anzahl der Messwertspeicherungen. In dieser Einstellung sind 108 Messungen im Speicher abgelegt.
	Speicherbelegung
17--	Anzahl der noch möglichen Messwertspeicherungen. 17 weitere Messungen können mit der aktuellen Einstellung/Konfiguration gespeichert werden.
	Während der Messwertspeicherung blinkt das Symbol REC.

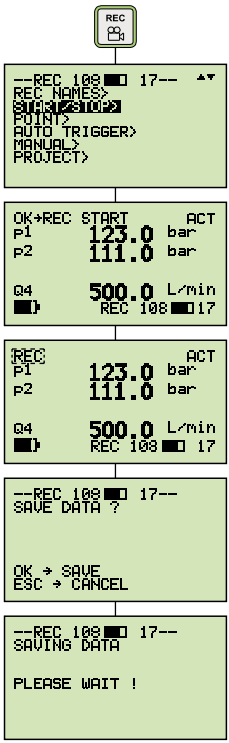
9.2 Die Einstellung REC NAMES



Bezeichnungen (Namen) für die Messungen und die Kanäle IN1/IN2/ IN3/IN4 werden in der Text/Zahleneingabe definiert. Diese Einstellungen bleiben im Messgerät gespeichert.

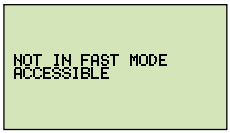
Speicherfunktion START/STOP

Das Starten (Taste START) und das Stoppen (Taste STOP/ESC) der Messwertspeicherung werden durch den Benutzer gesteuert.

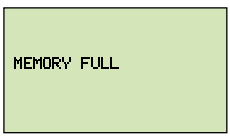


Das Datenformat FAST (Speicherintervall ACT Werte in 0,5 ms) kann im Modus START/STOP nicht angewendet werden.

Es erscheint folgende Meldung:

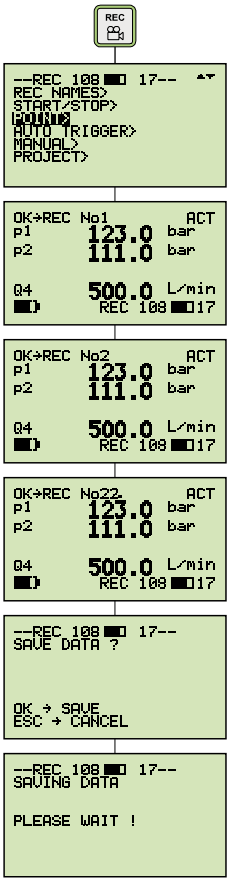


Wenn nicht genügend Platz im Messwertspeicher vorhanden ist, erscheint folgende Meldung:



Speicherfunktion POINT

Messpunkte, die einen bestimmten Maschinenablauf darstellen (z.B. Heben, Senken, Lastbetrieb, Leerlauf etc.), werden in einer „Punkt-zu-Punkt“-Kurve gespeichert. Im Beispiel sind die Kanäle p1, p2 und Q4 angeschlossen.



Der erste Datensatz wird gespeichert, z.B. p1, p2 und Q4

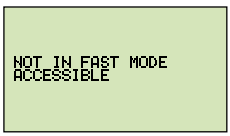
Der zweite Datensatz wird gespeichert, z.B. p1, p2 und Q4

Der dritte Datensatz wird gespeichert, z.B. p1, p2 und Q4

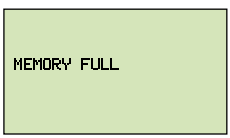
Mit der Taste OK werden die Datensätze gespeichert. Mit der Taste STOP/ESC wird die Messwertspeicherung beendet und alle Datensätze werden in den Messwertspeicher geschrieben.

Das Datenformat FAST (Speicherintervall ACT Werte in 0,5 ms) kann im Modus START/STOP nicht angewendet werden.

Es erscheint folgende Meldung:



Wenn nicht genügend Platz im Messwertspeicher vorhanden ist, erscheint folgende Meldung:



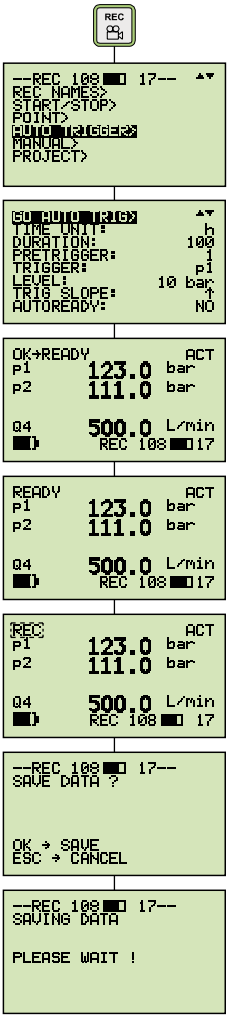
Speicherfunktion AUTO TRIGGER

Die Funktion Auto Trigger beschreibt eine Messwertspeicherung, die durch ein bestimmtes Startsignal ausgelöst wird (z.B. Druck auf Kanal 2 → 125 bar). Daraufhin wird eine automatisch ablaufende Messwertspeicherung gestartet, die nach dem Ablauf der voreingestellten Messzeit beendet wird.

Bei der Messwertspeicherung werden zeitabhängige Funktionen (z.B. Einschaltvorgänge oder Fertigungszyklen) gemessen.

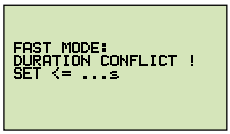
Folgende Parameter müssen eingestellt werden:

Menü	Einstellung/ Vorwahl	Werte	Bemerkung
TIME UNIT>	sec, hrs	h	Vorwahl der Zeiteinheit (Trigger/PreTrigger)
DURATION>	Zahl	100	Eingabe der Speicherzeit
PRE TRIGGER>	Zahl	1	Eingabe der PreTrigger-Zeit (Zeit vor dem Triggersignal)
TRIGGER>	IN	p1	Messkanal des Startpunkts
LEVEL>	Zahl	125 bar	Wert des Startpunkts
TRIG SLOPE>	▲ ▼	▲	Aufsteigende bzw. absteigende Flanke
AUTO READY>	YES, NO	YES	Automatische Wiederholung der Messwertspeicherung


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
GO AUTO TRIG
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE:
AUTOREADY: NO
OK→READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

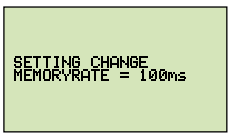
Wenn es zu Konflikten zwischen Speicherzeit und eingestellten Speicherintervallen kommt, erscheinen folgende Meldungen:

1. FAST MODE



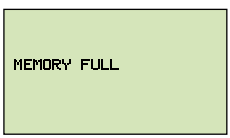
Konfiguration eines längeren Speicherintervalls

2. REC RATE



Konfiguration eines längeren Speicherintervalls

Wenn nicht genügend Platz im Messwertspeicher vorhanden ist, erscheint folgende Meldung:



Messwertspeicher löschen bzw. auf den PC übertragen.

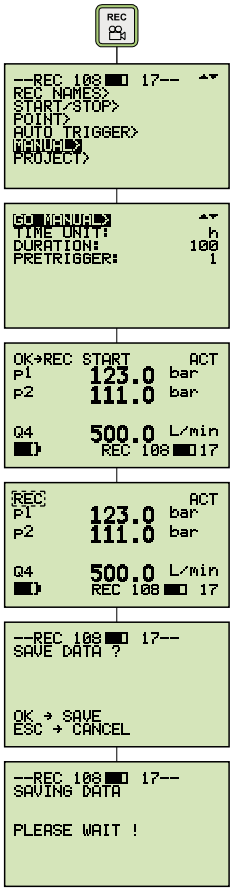
Speicherfunktion MANUAL

Die manuelle Trigger-Funktion beschreibt eine Messwertspeicherung, die durch ein manuelles Startsignal durch den Benutzer ausgelöst wird. Nach einer voreingestellten Messzeit wird die Messwertspeicherung automatisch beendet.

Dadurch werden zeitabhängige Messwertspeicherungen manuell gestartet.

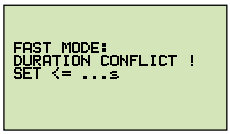
Folgende Parameter müssen eingestellt werden:

Menü	**Einstellung/ Vorwahl**	**Beispiel**	**Bemerkung**
TIME UNIT>	sec, hrs	h	Vorwahl der Zeiteinheit (Trigger/PreTrigger)
DURATION>	Zahl	100	Eingabe der Speicherzeit
PRE TRIGGER>	Zahl	1	Eingabe der PreTrigger-Zeit (Zeit vor dem Trigger-Signal)
TRIGGER>	IN	p1	Messkanal des Startpunkts


REC
--REC 108 17--
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
Go MANUAL>
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
OK→REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

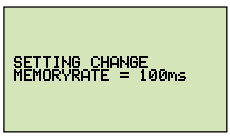
Wenn es zu Konflikten zwischen Speicherzeit und eingestellten Speicherintervallen kommt, erscheinen folgende Meldungen:

1. FAST MODE



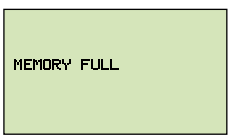
Konfiguration eines längeren Speicherintervalls

2. REC RATE



Konfiguration eines längeren Speicherintervalls

Wenn nicht genügend Platz im Messwertspeicher vorhanden ist, erscheint folgende Meldung:



Messwertspeicher löschen bzw. auf den PC übertragen.

Messwertspeicherung mit Voreinstellung PROJECT

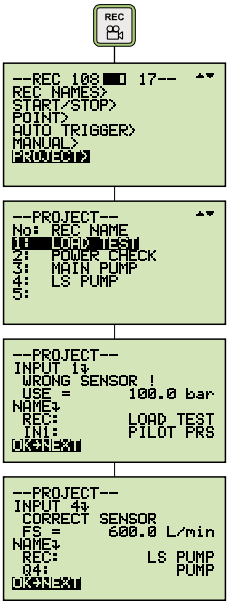
In dieser Einstellung werden Messwerte mit einer bestimmten Konfiguration von Sensoren durchgeführt. Diese Konfiguration wurde vom Benutzer mit der PC-Software vorgegeben. Dadurch werden Fehlmessungen und falsche Einstellungen vermieden.

Die Voreinstellung der Parameter werden in der PC-Software geändert bzw. in das Messgerät übertragen.

Folgende Parameter können eingestellt werden:

Menü	Einstellung/ Vorwahl		Bemerkung
REC NAME>	No: 1 . . 5	Load Test	Maximal 5 Voreinstellungen (Tests) stehen zur Auswahl.
INPUT>	PILOT PRS		Für jeden Kanal sind definierte Sensoren vorgegeben.
WRONG SENSOR !	USE	150 bar	Hinweis auf den falschen Sensor. Es muss ein Drucksensor mit entsprechenden FS (FullScale) an diesem Kanal angeschlossen werden.
CORRECT SENSOR!	FS	600 L/min	Hinweis auf den richtigen Sensor. Der nächste Kanal kann angeschlossen werden.

Wenn alle Sensoren angeschlossen sind, wird die jeweilige Art der Messwertspeicherung (START/STOP, POINT, AUTO TRIGGER, MANUAL) automatisch gewählt und durchgeführt.


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
IN1: PILOT PRS
OK>NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK>NEXT

10. Einstellung und Bedienung am PC

10.1 Anschluss an den PC

Messgerät, PC und USB-Kabel

1 Das Messgerät mit dem PC verbinden (USB-Kabel)

2 PC-Software starten.

Es erscheint der folgende Bildschirm:

Nach der Bestätigung wird das Messgerät automatisch initialisiert und ist mit dem PC verbunden.

10.2 Bedienung/Konfiguration vom PC

Alle weiteren Schritte und Einstellungen werden in der PC-Software ausführlich beschrieben:

- Online-Messung
- Auslesen des Messwertspeichers
- Definieren von PROJECT
- Verwalten und Analysieren gemessener Kurven

11. Zubehör

Netzgerät 110/240 VAC EUR/US/UK/AUS	SCSN-450
Kfz-Kabel 12/24 VDC	SCK-318-05-21
Anschlusskabel 3 m 5 m Verlängerung (5 m)	 SCK-102-03-02 SCK-102-05-02 SCK-102-05-12
Drucksensoren -1. . 15 bar 0. . 60/150/400/600/1.000 bar	 SCPT-015-02-02 SCPT-xxx-02-02
Volumenstrom-Sensoren -60. . +60 L/min -150. . 150 L/min	 SCQ-060-0-02 SCQ-150-0-02
Messturbinen 15/060/150/300/600/750 L/min	 SCFT-xxx-02-02
Messturbine mit Belastungsventil 150 L/min 300/600/750 L/min	 SCFT-150-DRV SCLV-PTQ-xxx
Volumenzähler 15/060/150/300 L/min	 SCVF-xxx-00-02
Temperatursensoren (125 °C) Einschraubfühler (M10) Handfühler	 SCT-150-04-02 SCT-150-0-02
Drehzahlmesser (10.000 RPM)	 SCRPM-220
Gerätekoffer mit Einsatz für SCFT-150-DRV Alu-Gerätekoffer SCLV-PTQ-300 SCLV-PTQ-600/750	 SCC-560 SCC-750 SCC-PTQ-300 SCC-PTQ-600

12. Technische Daten

Eingang	Sensorerkennung (p/T/Q/n) Anschluss von Fremdsensoren Steckverbindung 5pin Push-pull Auflösung 12 bit + Vorzeichen = 4.096 Schritte	
Abtastintervall	1 ms 0,25 ms FAST MODE (IN1)	
Anzeige	LCD 128 x 64 Pixel, Fläche 72 x 40 mm Beleuchtung Ziffernhöhe 6 mm	
Eingabe	Folientastatur	
Schnittstelle	USB 2.0 Online Speed 20 ms ACT-MIN-MAX	
Anzeigefunktionen	Differenz; Addition; Leistung; Volumen ACT; MIN; MAX; FS; TEMP	
Messwertspeicher	Messwertspeicher: Kurvenspeicher: Datenformat: Speicherkonfiguration:	1.000.000 Punkte 250.000 Punkte ACT; MIN-MAX FAST (0,25 ms) Intervall (z.B. 5 ms) Punkte pro Kanal (2.000)
Umgebungsbedingungen	Umgebungstemperatur: Lagertemperatur: Temperaturfehler: Relative Feuchte: Schutzart: Falltest	0 . . 50 °C -25 °C . . 60 °C 0,02 %/°C <80 % EN 60529 IP 54 (Spritzwasser/Öl) IEC 60068-2-32
CE	DIN/EN 61000-6-2 DIN/EN 61000-6-3	
Spannungsversorgung (extern)	11 . . 30 VDC Netzgerät 110/240 VAC - 15 VDC Kfz-Adapter (12/24 VDC)	

Batterie	NiMH Ladezeit 180 Minuten Betriebsdauer 8 Stunden
Gehäuse	Polyamid 235 x 106 x 53 mm Gewicht 530 g
PC Software SensoWin	Messdaten auslesen/darstellen und am PC analysieren Geräteeinstellungen auslesen/bearbeiten Geräteeinstellungen aus Bibliothek in das Messgerät laden

13. Beschreibung der Speicherfunktionen

Konfiguration Messwertspeicher		
DATA FORMAT	ACT	Innerhalb des Speicherintervalls (z.B. 50 ms) wird jeweils nur der aktuelle Messwert (ACT) in den Messwertspeicher geschrieben.
	MIN-MAX	Innerhalb des Speicherintervalls (z.B. 50 ms) wird jeweils ein MIN- und ein MAX-Wert in den Messwertspeicher geschrieben.
REC CONFIG	2.000 PTS	Die gewählte Speicherzeit wird automatisch in eine feste Anzahl von Speicherintervallen je Kanal aufgeteilt. Beispiel: Speicherzeit 10 min = 600 s Länge des Speicherintervalls = 600 s ÷ 2.000 = 300 ms
	REC RATE	Definition eines individuellen Speicherintervalls (z.B. 5 ms). Das Messgerät prüft anhand der Einstellungen (DATA FORMAT/REC RATE), ob die gewählte Speicherzeit verändert werden muss. Beispiel: Speicherzeit 100 h/Konflikt Speicherzeit
FAST MODE		Nur ACT Messwerte werden mit einem festem Speicherintervall von 0,5 ms mit IN1 gespeichert. Alle anderen Eingänge (INx) sind nicht in Funktion.

Auswahl Speicherfunktion: SCPT Druck-/Temperatursensor Speicherzeit 60 s				
Speicher-funktion	**Einstellung DATA FORMAT**	**Einstellung REC CONFIG**	**Kurven-speicher (Punkte)**	**Anzahl Messwerte/ Punkte p (bar) T (°C)**
START/ STOP	ACT MIN-MAX	–	120.000	p (bar) = 15.000 T (°C) = 15.000
AUTO/ MANUAL TRIGGER	ACT MIN-MAX	2.000 PTS	250.000	p (bar) = 2.000 T (°C) = 60
		REC RATE (5 ms)	250.000	p (bar) = 12.000 T (°C) = 60

Besonderheiten im Modus START/STOP:	
START STOP	In diesem Modus sind die Einstellungen in REC CONFIG nicht relevant. Wenn die Messwertspeicherung gestartet wird, ist die Speicherzeit noch nicht bekannt. Das Speicherintervall wird deshalb während der Messwertspeicherung dynamisch optimiert und entsprechend angepasst. Der Kurvenspeicher hat eine Kapazität von ca. 120.000 Messwerten. Beim Anschluss von SCPT-Sensoren werden die Messwerte für Temperatur und Druck mit dem gleichen Speicherintervall gespeichert.

1. Bestimmung der Anzahl der Speicherintervalle:			
Kanäle	**Messgröße**	**Anzahl Messwerte**	**Anzahl Speicherintervalle**
			120.000 ÷ Messwerte = Anzahl Speicherintervall
Beispiel ①			
4 (SCPT)	°C	4	
	bar	4	
	Messwerte	8	120.000 ÷ 8 = 15.000
Beispiel ②			
2 (SCPT)	°C	2	
	bar	2	
1 (SCFT)	L/min	1	
1 (SCRPM)	RPM	1	
	Messwerte	6	120.000 ÷ 6 = 20.000

2. Bestimmung der Länge des Speicherintervalls:			
Zeit	**Kanäle**	**Anzahl Messwerte**	**Länge Speicherintervall**
Beispiel ①			
60 s 60.000 ms	4 (SCPT)	8	60.000 ÷ 15.000 = 4 ms
30 s 30.000 ms	4 (SCPT)	8	30.000 ÷ 15.000 = 2 ms
Beispiel ②			
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	60.000 ÷ 20.000 = 3 ms
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	40.000 ÷ 20.000 = 2 ms

Besonderheiten im Modus AUTO/MANUAL TRIGGER:	
AUTO/MANUAL TRIGGER	In diesem Modus sind die Einstellungen in REC CONFIG relevant. Wird die Messwertspeicherung gestartet, ist die Speicherzeit bekannt. Der Kurvenspeicher hat eine Kapazität von 250.000 Messwerten.
REC CONFIG 2.000 PTS	DURATION ÷ 2.000 = Länge des Speicherintervalls/Kanal Bei Anschluss von SCPT-Sensoren werden die Messwerte für Temperatur mit einem Speicherintervall von 1 Sekunde gespeichert.
REC CONFIG REC RATE	Die Messwertspeicherung wird mit dem eingestellten Intervall (REC RATE) durchgeführt. Bei Anschluss von SCPT-Sensoren werden die Messwerte für Temperatur mit einem Speicherintervall von 1 Sekunde gespeichert.

1. Bestimmung der Länge des Speicherintervalls für REC CONFIG 2000 PTS:				
Zeit	**Kanäle**	**Mess-größe**	**Anzahl Mess-werte**	**Länge des Speicherintervalls**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 2.000	60.000 ÷ 2.000 = 30 ms
gespeicherte Messpunkte			8.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 2.000	30.000 ÷ 2.000 = 15 ms
gespeicherte Messpunkte			8.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 2.000 1 x 2.000 1 x 2.000	60.000 ÷ 2.000 = 30 ms
gespeicherte Messpunkte			8.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 2.000 1 x 2.000 1 x 2.000	40.000 ÷ 2.000 = 20 ms
gespeicherte Messpunkte			8.080	

2. Bestimmung der Anzahl der Speicherintervalle für REC CONFIG/REC RATE 5 ms:				
Zeit	**Kanäle**	**Mess-größe**	**Anzahl Mess-werte**	**Anzahl Speicher-intervall**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 12.000	60.000 ÷ 5 = 12.000
gespeicherte Messpunkte			48.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 6.000	30.000 ÷ 5 = 6.000
gespeicherte Messpunkte			24.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 12.000 1 x 12.000 1 x 12.000	60.000 ÷ 5 = 12.000
gespeicherte Messpunkte			48.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 8.000 1 x 8.000 1 x 8.000	40.000 ÷ 5 = 8.000
gespeicherte Messpunkte			32.080	

Foreword

Revisions

Version	Date	Change
1.0	12/2006	First edition

Contact address

Parker Hannifin GmbH & Co. KG
Tube Fittings Division Europe
Postfach 12 02 06, 33652 Bielefeld
Am Metallwerk 9, 33659 Bielefeld
Phone +49 521/40 48-0
Fax: +49 521/40 48-42 80
E-mail: Ermeto@parker.com
http://www.parker.com

Contents

Foreword 67
Revisions 67

1. Notes on safety/product selection 71
1.1 Approved use 71
1.2 Skilled personnel 71
1.3 Accuracy of the technical documentation 71
1.4 High-pressure applications 71
1.5 Service/repair 72
1.6 Notes on disposal 72

2. Device version/range of supply 74

3. Initial use 75
3.1 Charging the batteries/battery status indicator 75
3.2 Replacing the batteries 75

4. Keys and functions 76
4.1 Symbols and using the menus 78

5. Connecting the sensors/display functions 80
5.1 Display format (DISP) 81
5.2 Display configuration (LINE) 82
5.3 Zero point calibration (ZERO) 83
5.4 Deleting MIN/MAX values (RESET) 84
5.5 Differential value display 84
5.6 Differential value alignment (IN1=IN2) 85
5.7 Connecting auxiliary sensors (SET AUX. SENSOR) 87
5.8 Error messages/warnings 90

6. Device settings (SET) 92
6.1 Setting the units (SET-UNIT) 94
6.2 Auto power off (SET-AUTO POWER) 94
6.3 Setting auxiliary sensors (SET AUX. SENSOR) 94
6.4 Displaying defined measurement tasks (SET-PROJECT) 95
6.5 Setting the contrast (SET-CONTRAST) 96
6.6 Setting the time/date (SET-TIME/DATE) 96
6.7 Displaying the device version (SET-VERSION) 96
6.8 Factory setting (USER RESET) 97

7. Configuring the measured value memory (MEMORY SET) 98
7.1 Deleting measured value memory (MEM-DELETE MEMORY) 100
7.2 Setting the data format (MEM-DATA FORMAT) 100
7.3 Setting the recording format (MEM-REC-CONFIG) 101

8. The REC menu 102

9. Recording measured values 104
9.1 Settings for recording measured values (REC) 104
9.2 The REC NAMES setting 105

10. Setting and operating via PC 118
10.1 Connecting to a PC 118
10.2 Operating/configuring via PC 119

11. Accessories 120

12. Technical data 121

13. Description of the memory functions 123

1. Notes on safety/product selection

1.1 Approved use

The device is approved for use in applications described in the Operating Instructions only. Any other use is not approved and can lead to accidents or the destruction of the device. Non-approved use will result in the immediate expiry of all guarantee and warranty claims against the manufacturer.

Serious malfunctions leading to personal injury or damage to property can result from using the chosen product in applications that do not comply with the given specifications or from disregarding the operating instructions and warning notes.

1.2 Skilled personnel

These operating instructions have been written for skilled personnel who are familiar with the valid regulations and standards applicable to the field of application.

1.3 Accuracy of the technical documentation

These operating instructions were created with the utmost care and attention. However, we offer no guarantee that the data, graphics and drawings are correct or complete. Subject to alteration without notice.

1.4 High-pressure applications

Selection

When selecting pressure components, ensure that the overload pressure will not be exceeded.

It is possible that the pressure cell can be deformed when the overload pressure is exceeded (depending on the duration/frequency and level of the pressure spike).

The 'diesel effect' caused by entrapped air can result in pressure spikes that far exceed the overload pressure. The nominal pressure of the pressure component should be higher than the nominal pressure of the system to be measured.

Mounting
Please abide by the instructions and observe the correct tightening torques for the fittings or adapters being utilised.
Connector thread: ½" BSP = 90 Nm
¼" BSP = 30 Nm

Please observe the highest pressures detailed in the catalogues for hydraulic fittings (ERMETO) or hydraulic hoses from Parker Hannifin.

1.5 Service/repair

For repairs to or calibration of the measurement instruments, please contact a Parker Hannifin sales branch.

1.6 Notes on disposal

Recycling in compliance with WEEE

Purchasing our product gives you the opportunity to return the device to Parker Hannifin at the end of its life cycle.

The EU Directive 2002/96 EC (WEEE) regulates the return and recycling of waste electrical and electronics equipment.
As of 13/8/2005 manufacturers of electrical and electronics equipment in the B2B (business-to-business) category are obliged to take back and recycle WEEE free of charge sold after this date. After that date, electrical equipment must not be disposed of through the 'normal' waste disposal channels. Electrical equipment must be disposed of and recycled separately. All devices that fall under the directive must feature this logo:

Can we be of assistance?

Parker Hannifin offers you the option of returning your old device to us at no extra charge. Parker Hannifin will then professionally recycle and dispose of your device in accordance with the applicable law.

What do you have to do?

Once your device has reached the end of its service life, simply return it by parcel service (in the box) to your Parker Hannifin sales branch responsible for customer care - we will then initiate the necessary recycling and disposal measures. You will incur no costs or suffer any inconvenience.

Any questions?

If you have any questions, please contact us or visit our website: www.parker.com

2. Device version/range of supply

The measuring instrument and sensors enable the user to measure all relevant parameters in a hydraulic system.

Parameters:

- [bar/psi] Pressure, Δp (load sensing pumps)
- [°C/°F] Temperature
- [L/min/G/min] (U.S) volumetric flow rate
- [1/min] RPM

Automatic sensor recognition means the measuring instrument is simple to operate. It is not necessary to carry out any further settings to the device.

Plug & Work is one of the more important attributes of the device. It allows the measuring instrument to be ready to operate in an instance, and excludes erroneous measurements.

3. Initial use

The measuring instrument is supplied with rechargeable batteries fitted at the factory.

Charge the rechargeable batteries for at least 3 hours before using for the first time. The device is then ready for use.

3.1 Charging the batteries/battery status indicator

If the battery power is too low, the battery symbol flashes and the measuring instrument turns off automatically.

Battery symbol

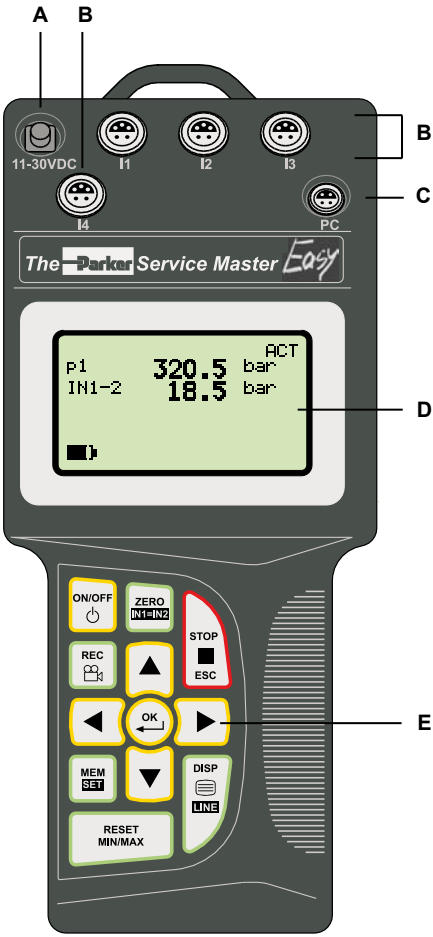
The measuring instrument is powered using the external power supply unit or via the car adapter. The battery can be recharged directly. The recharging process begins as soon as the power supply unit is connected.

► Please refer to the chapter 'Accessories' for more information about the external power supply unit and the car adapter.

3.2 Replacing the batteries

Replacing the batteries

4. Keys and functions



A **11-30 VDC**
power supply unit
110/220 VAC-15 VDC

Car adapter
12/24 VDC

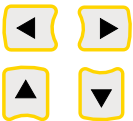
B **I1 . . I4**
Sensor ports

C **PC (USB)**

D **Display**

E **Keypad**

Function keys

	ON/OFF
	Confirms function/value
	**Selects** function/value
	STOP/ESC

Menu keys

* These menu keys are assigned dual functions:
Assignment 1. Menu level = 1 x press
Assignment 2. Menu level (black background) = 1 x hold key pressed down (2 s)

	ZERO **IN1 = IN2**	Zero point calibration Differential value alignment	*
	MEM **SET**	Memory configuration Main menu (device settings)	*
	DISP **LINE**	MIN-MAX/ACTUAL or FS display Display configuration	*
	REC	Record measured values	
	Delete MIN/MAX values		

4.1 Symbols and using the menus

If the the sign '>' is displayed at the end of a menu function, press the OK key to enter an associated submenu.
If the sign ':' is displayed, press the OK key to confirm the respective entry.

Menu symbols	Key	Function	Example
>		Call up a submenu/ setting	UNIT>
:		Confirm	AUTO POWER: OFF
▲ ▼		Select	--SET--

Key assignments and symbols associated with the menu functions are consistent throughout this device; therefore, there will be no further explicit explanation given.

What the function keys do within the menus

Use the arrow keys to scroll between functions when several functions are available for selection in a window or a menu. The arrow keys move the cursor in the direction in which the arrow is pointing.

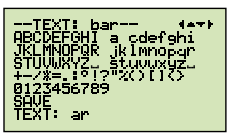
Press the OK key each time you wish select a function or submenu; when making alterations or adding values you must press OK to confirm your action. The OK key is used to save all settings. Press the STOP/ ESC key if you wish to leave a menu or do not wish to save an entry. Key assignment and mode of operation of these three keys is always the same no matter in which menu they are used.

As the function keys are easy to understand and always function in the same manner, actuating the function keys has not been included in the example sequences to ensure that the content of the menus remain central to the descriptions. It is a pre-condition for replicating the examples that the function keys are used as described above.

Example: setting the unit (text) and the measurement range (numerical)

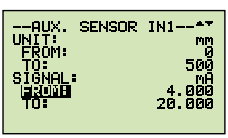
Text input:

to set the units (max. 15 characters)



Numerical input:

to set the measurement range and signal span

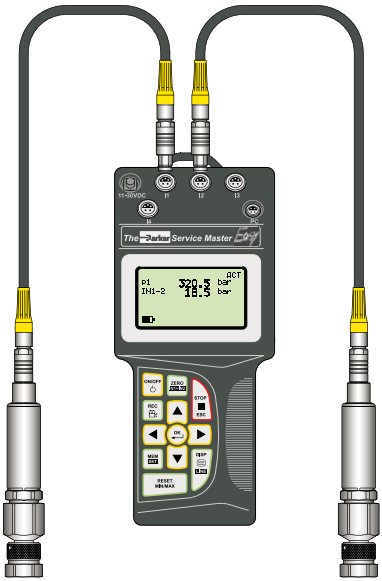


5. Connecting the sensors/display functions

To avoid electrical interference, please observe the following steps:

1 Connect the sensor to the measuring instrument using the connection cable.

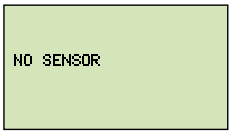
2 Turn on the measuring instrument.



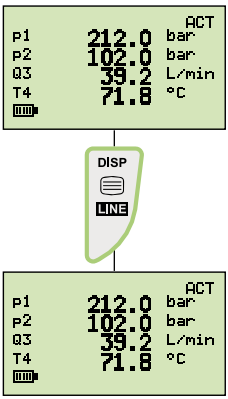
Measuring instrument with two pressure sensors

- Once turned on, all measured values are visible in the display.
- Automatic sensor recognition ensures that the measured value is indicated in the correct unit.
- No further settings to the device are required.

- The following message will be displayed if no sensor is connected to the device:



5.1 Display format (DISP)



Press **DISP** (once)

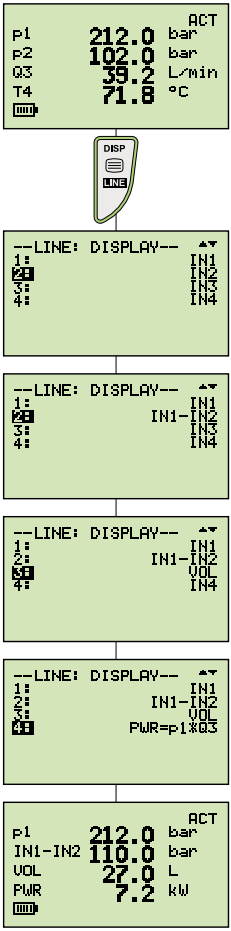
It is possible to change the display format by pressing **DISP** (once only).

Available for selection:

ACT = Actual values
MIN = Minimum values
MAX = Maximum values (pressure spikes)
FS = Full scale (upper range value)
TEMP = Temperature display

The **TEMP** display applies only to 'SCPT' type sensors.

5.2 Display configuration (LINE)



Press and hold **LINE** (2 s)

Line:

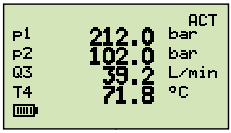
1: No setting possible
cannot be selected

2: Available for selection:
Difference (IN1 - IN2)
Addition (IN1 + IN2)

3: **Volume** VOL= Q3 x time

4: Available for selection:
Power
PWR1 = p1 x Q3
PWR2 = (p1-p2) x Q3

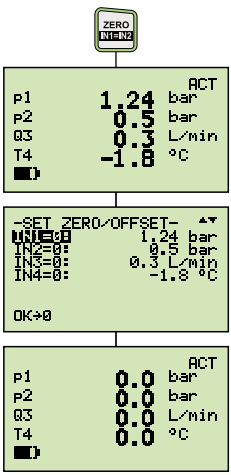
5.3 Zero point calibration (ZERO)

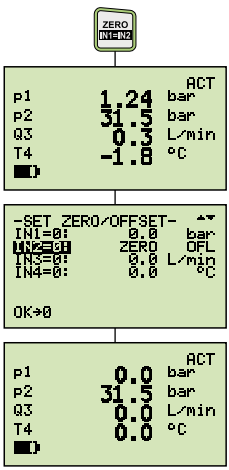


If the alignment values are within the permissible tolerance (2 % of FS), the values are set to zero.

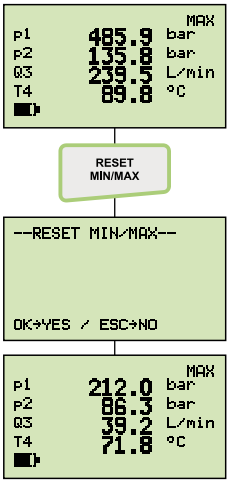
If the alignment values exceed the permissible tolerance (2 % of FS), the following is displayed: ZERO OFL.

Press **ZERO** (once)





5.4 Deleting MIN/MAX values (RESET)



The MAX values measured until now are displayed in the MAX display.

Deleting MIN/MAX values.

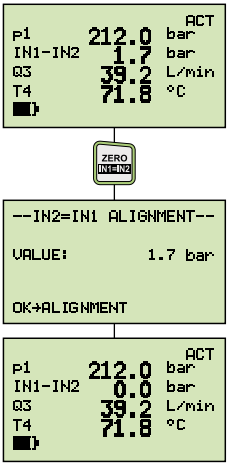
The updated MAX values are displayed in the MAX display.

Example: Loss of pressure in the hydraulic system

5.5 Differential value display

► The settings IN1 – IN2 are described in the chapter 'Display configuration (LINE)'.

5.6 Differential value alignment (IN1=IN2)



Press and hold **IN1=IN2** (2 s)

ENGLISH

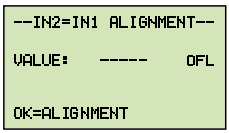
Carry out differential value alignments at below operating pressure. Connect two pressure sensors to the same connection (T-adapter). Δp-calibration sets the tolerance of the sensors in relation to one another to zero.

This setting remains stored; it is valid only for the respective operating pressure.

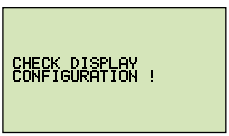
Three error messages are possible for IN1=IN2:

1 Alignment values exceed the permissible tolerance:

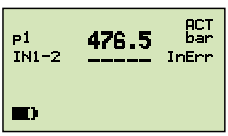
- For sensors with automatic sensor recognition, 5 % of the upper range value (FS)
- For auxiliary sensors, 10 % of the upper range value (FS)



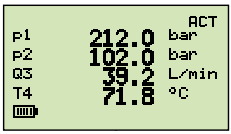
2 IN1 - IN2 is not configured (DISP-LINE):



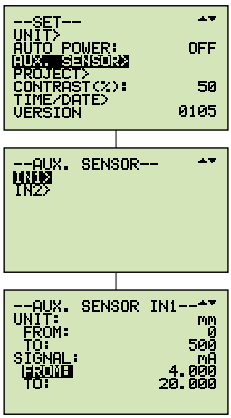
3 Measured variables are not the same (IN1=bar/IN2=L/min)



5.7 Connecting auxiliary sensors (SET AUX. SENSOR)



Press and hold **SET** (2 s)

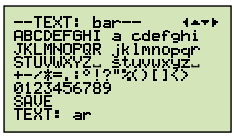


Ensure that the electrical specifications of the auxiliary sensors are compatible with the measuring instrument/adapter. Please ensure correct PIN assignment and supply voltage and avoid short-circuits!

ENGLISH

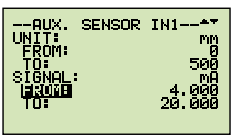
Text input for UNIT/SIGNAL

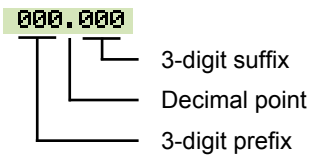
To set the units:
Text input up to max. 15 characters.



Numerical input for FROM/TO

To set the measurement range and signal span
3-digit prefix, decimal point, 3-digit suffix.

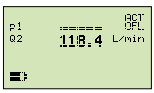
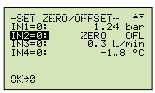
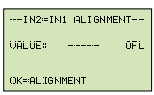
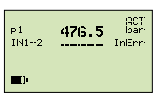


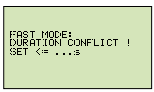
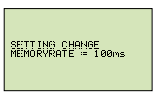


Connecting auxiliary sensors:

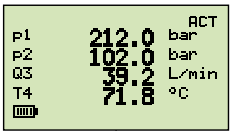
Measuring instrument with connector adapter and sensors for distance (mm) and force (kN).

5.8 Error messages/warnings

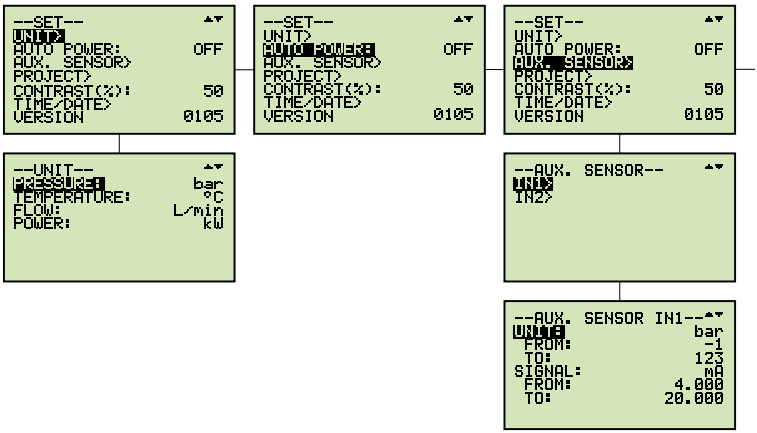
Display	Description	What action to take?
	No sensor is connected	Turn off the measuring instrument Connect sensor Turn on the measuring instrument
%	An auxiliary sensor is connected.	Carry out settings in the menu SET- AUX.SENSOR
	Sensor recognition interrupted (cable break or input defect)	Send measuring instrument, sensor and connection cable to Parker Hannifin.
	Measurement range overflow The measured pressure is outside of the measurement range	Release pressure from the system Use sensor with wider measurement range
	Overflow ZERO The zero point offset value exceeds the tolerance	Check only when no pressure is applied
	Overflow IN1 = IN2 Differential value alignment The alignment value exceeds the tolerance	Test system pressure Use sensors with wider measurement range
	DISP LINE IN1 = IN2 Wrong setting	Configure IN1-IN2
	Overflow IN1 - IN2: Differential value alignment	Measured variables (sensors) must be the same IN1 / IN2 = bar IN1 / IN2 = L/min IN1 / IN2 = °C
	Measured value memory full	Download measured values to PC Delete measured value memory

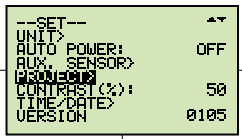
Display	Description	What action to take?
	Do not use in FAST MODE	Setting REC: START-STOP/POINT FAST MODE only for AUTO TRIGGER MANUAL possible
	Recording time conflict (DURATION) FAST MODE (0.5 ms)	REC setting AUTO TRIGGER MANUAL Alter recording time DURATION
	Recording time conflict (REC RATE)	Setting MEM-SET REC CONFIG REC RATE Alter recording interval REC RATE. Press OK to confirm

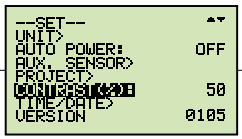
6. Device settings (SET)

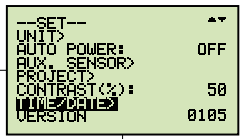


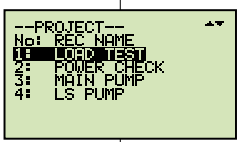
Press and hold **SET** (2 s)

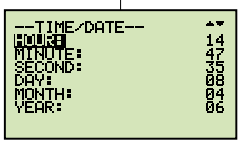


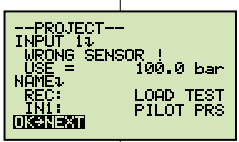

--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105

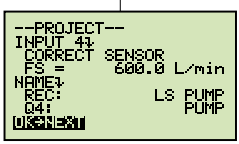

--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105


--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105

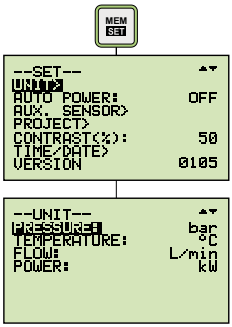

--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP


--TIME/DATE--
HOUR: 14
MINUTE: 47
SECOND: 35
DAY: 08
MONTH: 04
YEAR: 06


--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
IN1: PILOT PRS
OK→NEXT


--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK→NEXT

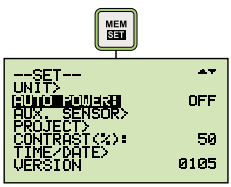
6.1 Setting the units (SET-UNIT)



Available for selection:

PRESSURE: bar, mbar, psi, MPa, kPa
TEMPERATURE: °C, °F
FLOW: L/min, G/min (US)
POWER: kW, HP (US)

6.2 Auto power off (SET-AUTO POWER)



Available for selection:

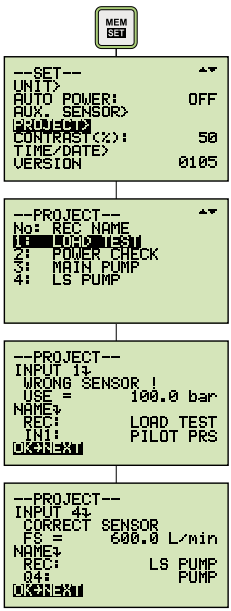
AUTO POWER: OFF, ON

6.3 Setting auxiliary sensors (SET-AUX. SENSOR)

► Further information is available in the chapter 'Connecting auxiliary sensors'.

6.4 Displaying defined measurement tasks (SET-PROJECT)

Up to five different measurement tasks (PROJECT) can be configured in the PC software. Certain sensors are defined for each input. These definitions can be retrieved in SET-PROJECT.

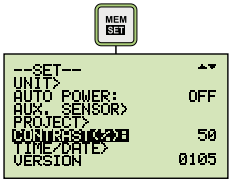


Input 1
Wrong sensor connected!
Please use measurement range 100 bar.

Input 4
Correct sensor connected
FS = 600 L/min

It is only possible to alter this setting using the PC software.

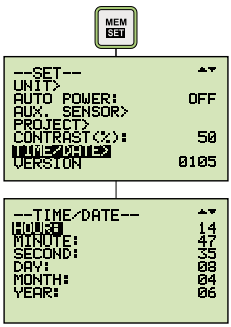
6.5 Setting the contrast (SET-CONTRAST)



Available for selection:

CONTRAST: 10 . . 100 %

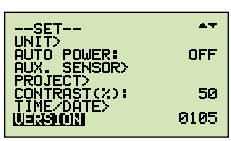
6.6 Setting the time/date (SET-TIME/DATE)



Available for selection:

HOUR: 0 . . 23
MINUTE: 0 . . 59
SECOND: 0 . . 59
DAY: 1 . . 31
MONTH: 1 . . 12
YEAR: 1 . . 99

6.7 Displaying the device version (SET-VERSION)



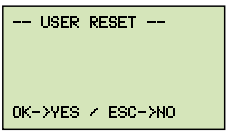
6.8 Factory setting (USER RESET)

Proceed as follows to restore the measuring instrument to its factory-set default settings:

1 Turn off the measuring instrument.

2 Press and hold down the MEM-SET key.

3 Press the ON/OFF key.



4 Press OK to confirm USER RESET

7. Configuring the measured value memory (MEMORY SET)

The following settings will be undertaken:

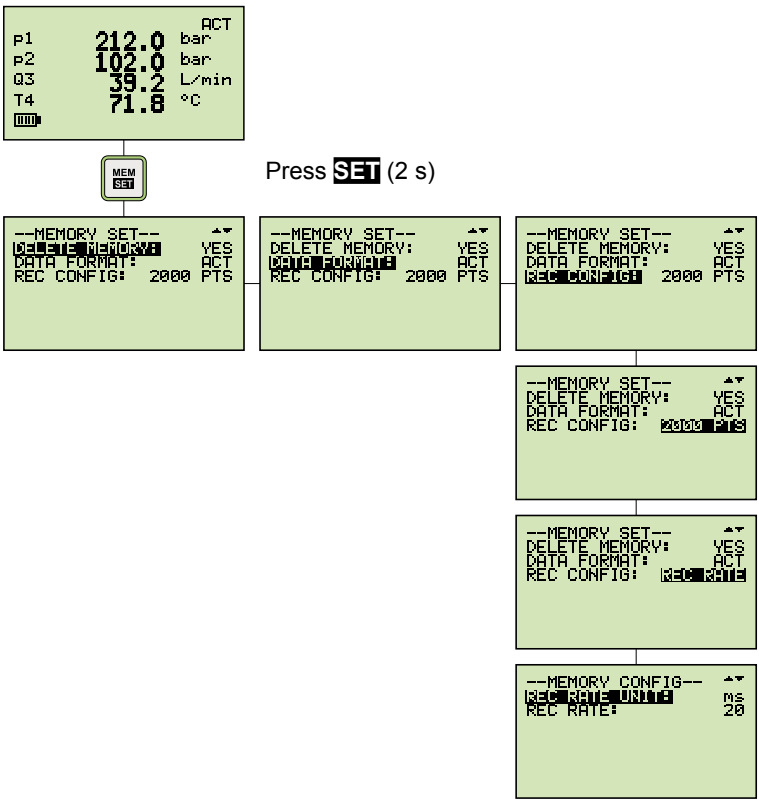
- Delete measured value memory
- Configure data format of the measured values
- Configure recording intervals

Menu	Setting/ pre-selection	Example	Notes
DELETE MEMORY:	YES, NO	YES	Delete the measured value memory
DATA FORMAT:	ACT MIN-MAX	ACT	Data format of the measured values **ACT =** Save actual values **MIN-MAX =** Save MIN/MAX values
REC CONFIG:	REC RATE 2.000 PTS	2 000 PTS	**REC RATE =** Setting an individual recording interval **2.000 PTS =** Dividing the recording time in 2 000 recording intervals
REC RATE UNIT:	ms, s, h	ms	Pre-selecting time unit (recording interval)
REC RATE:	Number	20	Setting 20 ms

When defining ACT values, it is possible that important measurement values will not be saved if the selected recording interval is too great.

Example:

No dynamic MIN-MAX values are saved when the recording interval is set to 200 milliseconds. Therefore, the setting MIN-MAX is recommended for dynamic measurements (pressure spikes).



7.1 Deleting measured value memory (MEM-DELETE MEMORY)

MEM SET press once (briefly).

Available for selection:

DELETE MEMORY: YES/NO

The measured value memory will be deleted when the OK key is pressed to confirm the action.

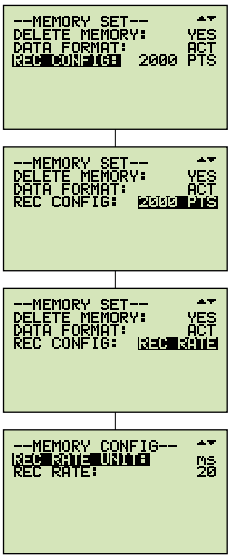
7.2 Setting the data format (MEM-DATA FORMAT)

Available for selection:

DATA FORMAT: ACT
MIN/MAX
FAST

When set to FAST, the recording interval for measuring and storing at IN1 is 0.5 ms.

7.3 Setting the recording format (MEM-REC-CONFIG)



REC CONFIG

Two different formats can be set:

a. Format 2.000 PTS

The measurement curves are saved with a resolution of 2.000 intervals (points).

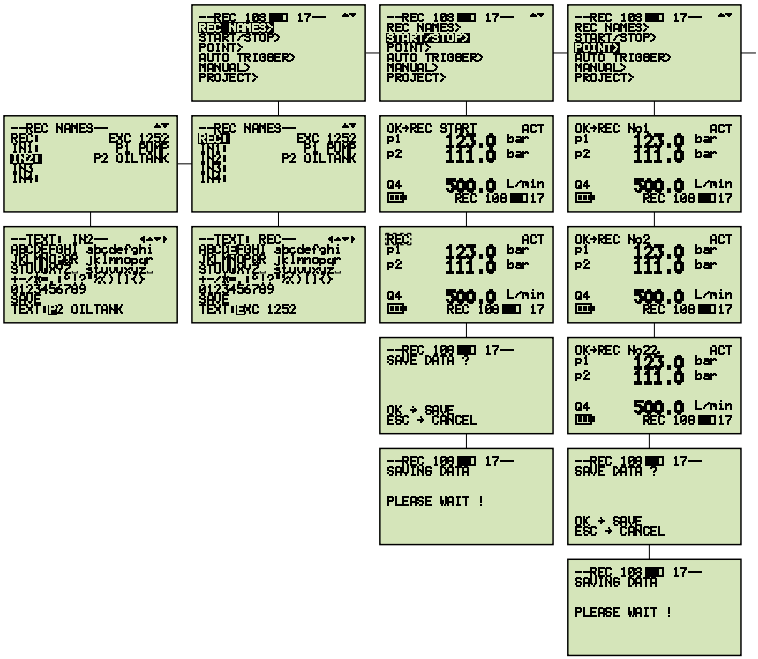
b. Format REC RATE

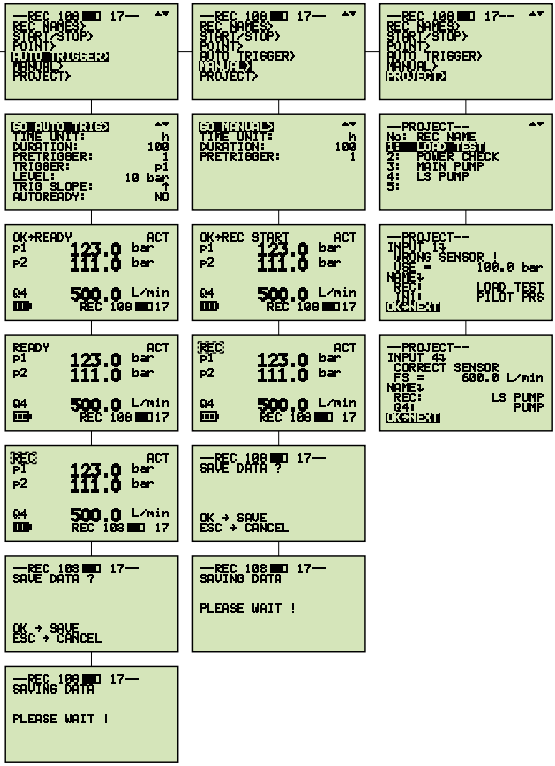
The measurement curves are saved at a defined interval.

Example: 20 ms

ENGLISH

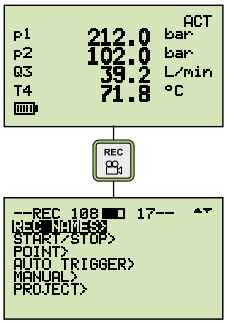
8. The REC menu




REC 100 17
REC NAMES>
START/STOP>
POINTS>
AUTO TRIGGER>
MANUAL>
ARCHIVE>
PROJECT>
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
OK+READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
OK+REC START ACT
READY ACT
REC ACT
SAVE DATA ?
OK → SAVE
ESC → CANCEL
SAVING DATA
PLEASE WAIT !
PROJECT
No: REC NAME
1: POWER CHECK
2: MAIN PUMP
3: LS PUMP
4:
5:
INPUT I3
WRONG SENSOR !
USE = 100.0 bar
MORE>
REC!
TAT!
OK+NEXT
LOAD TEST
PILOT PRS
INPUT I4
CORRECT SENSOR
FS = 600.0 L/min
REC!
Q4!
LS PUMP
PUMP

9. Recording measured values

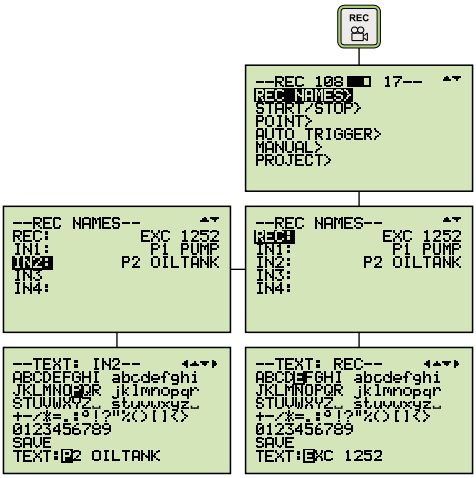
9.1 Settings for recording measured values (REC)



The following parameters are displayed in the information bar:

REC 108	Number of recorded measured values. In this example there are 108 measurements saved to memory.
	Memory allocation
17--	Number of measured values that can still be recorded. With the current setting/configuration it is possible to save a further 17 measurements.
	The REC symbol flashes when measured values are being written to memory.

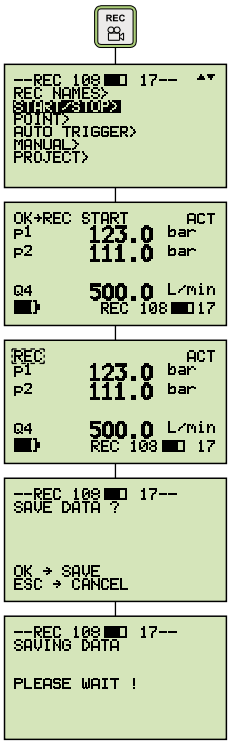
9.2 The REC NAMES setting



Designations (names) for measurements and channels IN1/IN2/IN3/IN4 are defined through the text/numerical input. These settings remain saved in the measuring instrument.

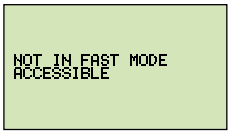
Memory function START/STOP

The user controls the recording of measured values using the START and STOP/ESC keys.

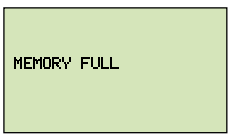


The data format FAST (recording interval ACT values in 0.5 ms) cannot be used when the device is in the START/STOP mode.

The following message is displayed:

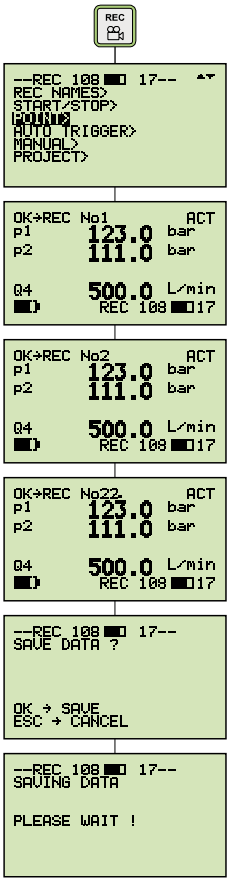


If the measured value memory is full, the following message is displayed:



Memory function POINT

Measurement points representing a given machine sequence (for example, lifting, sinking, operation under load, off-load operation etc.) are saved in a 'point-to-point curve'. In the example shown, the channels p1, p2 and Q4 are connected.



The first data record will be saved; for example, p1, p2 and Q4

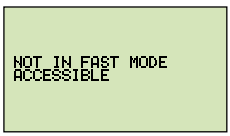
The second data record will be saved; for example, p1, p2 and Q4

The third data record will be saved; for example, p1, p2 and Q4

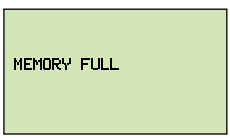
Press the OK key to save the data records. Press the STOP/ESC key to end recording measured values; all data records will be written in the measured value memory.

The data format FAST (recording interval ACT values in 0.5 ms) cannot be used when the device is in the START/STOP mode.

The following message is displayed:



If the measured value memory is full, the following message is displayed:



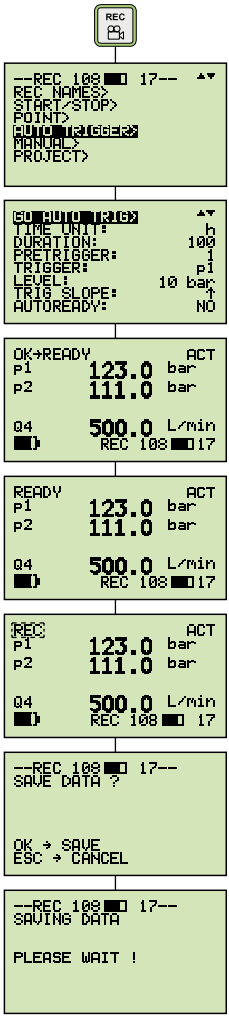
Memory function AUTO TRIGGER

The function Auto Trigger documents the process of recording measured values triggered by a defined start signal (for example, pressure on channel 2 → 125 bar). In response, a sequence of measured values are automatically recorded until the previously set measurement time expires.

Time-dependent functions (for example, making operations or production cycles) are measured when recording measured values.

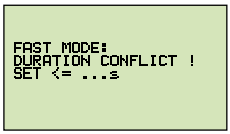
The following parameters must be set:

Menu	Setting/ pre-selection	Values	Notes
TIME UNIT>	sec, hrs	h	Pre-selected time unit (trigger/pre-trigger)
DURATION>	Number	100	Recording time
PRE TRIGGER>	Number	1	Pre-trigger time (time before the trigger signal)
TRIGGER>	IN	p1	Starting-point measuring channel
LEVEL>	Number	125 bar	Start point value
TRIG SLOPE>	▲ ▼	▲	Ascending or descending edge
AUTO READY>	YES, NO	YES	Recording of measured values is repeated automatically


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
GO AUTO TRIG
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
OK→READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

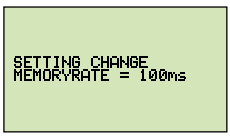
If conflicts arise between the recording time and the set recording interval, the following message is displayed:

1. FAST MODE



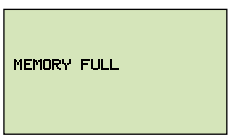
Configuring a longer recording interval

2. REC RATE



Configuring a longer recording interval

If the measured value memory is full, the following message is displayed:



Delete measured value memory or transfer to PC.

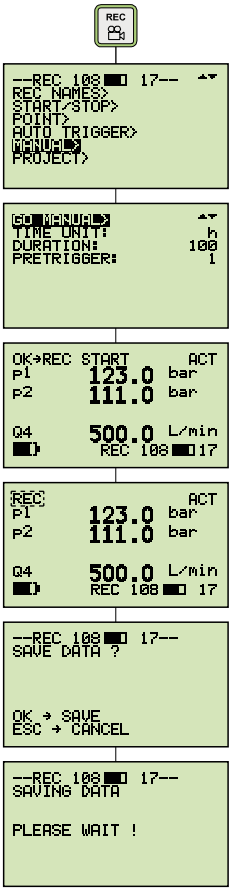
Memory function MANUAL

The manual trigger function documents the process of recording measured values triggered by a manual start signal initiated by the user. Automatic recording of measured values ends after a predetermined measurement time.

For this reason, time-dependent recordings of measured values are started manually.

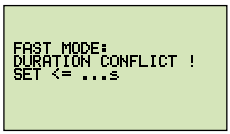
The following parameters must be set:

Menu	Setting/ pre-selection	Example	Notes
TIME UNIT>	sec, hrs	h	Pre-selected time unit (trigger/pre-trigger)
DURATION>	Number	100	Recording time
PRE TRIGGER>	Number	1	Pre-trigger time (time before the trigger signal)
TRIGGER>	IN	p1	Starting-point measuring channel


REC
--REC 108 17--
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
GO MANUAL>
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
OK→REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

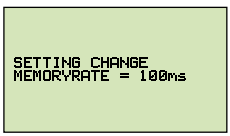
If conflicts arise between the recording time and the set recording interval, the following message is displayed.

1. FAST MODE



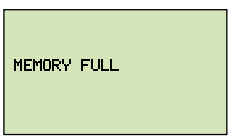
Configuring a longer recording interval

2. REC RATE



Configuring a longer recording interval

If the measured value memory is full, the following message is displayed:



Delete measured value memory or transfer to PC.

Recording measured values with default PROJECT settings

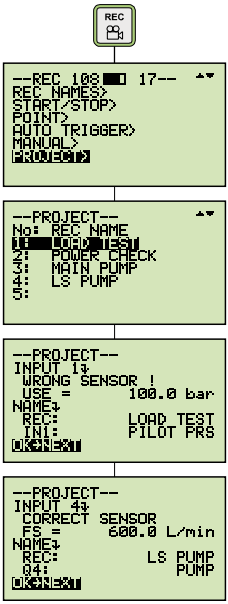
In this setting, measurements are made using a defined sensor configuration. This configuration is defined by the user using the PC software. This avoids false measurements and wrong settings.

The preset parameters are altered in the PC software and transferred to the measuring instrument.

The following parameters can be set:

Menu	Setting/ pre-selection		Notes
REC NAME>	No: 1 . . 5	Load Test	There are max. 5 predefined settings (tests) available for selection.
INPUT>	PILOT PRS		Defined sensors are defined for each channel.
WRONG SENSOR !	USE	150 bar	Warns of wrong sensor. A pressures sensor with the corresponding FS (full scale) must be connected to this channel.
CORRECT SENSOR!	FS	600 L/min	Indicates correct sensor. The next channel can be connected.

When all of the sensors are connected, the respective type of recording (START/STOP, POINT, AUTO TRIGGER, MANUAL) is selected and performed automatically.


REC
--REC 100 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
--PROJECT--
INPUT I1
WRONG SENSOR !
USE = 100.0 bar
NAME
REC: LOAD TEST
INI: PILOT PRS
OK=NEXT
--PROJECT--
INPUT 4
CORRECT SENSOR
FS = 600.0 L/min
NAME
REC: LS PUMP
04: PUMP
OK=NEXT

10. Setting and operating via PC

10.1 Connecting to a PC

Measuring instrument, PC and USB cable

1 Connect the measuring instrument to the PC (USB cable)

2 Launch PC software.

The following screen is displayed:

Once the procedure has been confirmed, the measuring instrument will be initialised and can communicate with the PC.

10.2 Operating/configuring via PC

All further steps and settings are described in detail in the PC software.

- Online measurement
- Reading out the measured value memory
- PROJECT definition
- Administering and analysing measurement curves

11. Accessories

Power supply unit 110/240 VAC EUR/US/UK/AUS	SCSN-450
Car adapter cable 12/24 VDC	SCK-318-05-21
Connection cable 3 m 5 m Extension (5 m)	 SCK-102-03-02 SCK-102-05-02 SCK-102-05-12
Pressure sensors -1 ... 15 bar 0 ... 60/150/400/600/1.000 bar	 SCPT-015-02-02 SCPT-xxx-02-02
Volumetric flow rate sensors -60 ... +60 L/min -150 ... 150 L/min	 SCQ-060-0-02 SCQ-150-0-02
Measurement turbines 15/060/150/300/600/750 L/min	 SCFT-xxx-02-02
Measurement turbines with load valve 150 L/min 300/600/750 L/min	 SCFT-150-DRV SCLV-PTQ-xxx
Volumetric flow meter 15/060/150/300 L/min	 SCVF-xxx-00-02
Temperature sensors (125 °C) Screw-in sensor (M10) Hand-held sensor	 SCT-150-04-02 SCT-150-0-02
Rotational speed sensor (10 000 RPM)	 SCRPM-220
Carry case with foam insert for SCFT-150-DRV Aluminum carry case SCLV-PTQ-300 SCLV-PTQ-600/750	 SCC-560 SCC-750 SCC-PTQ-300 SCC-PTQ-600

12. Technical data

Input	Sensor recognition (p/T/Q/n) Connecting auxiliary sensors Plug-in connection, 5-pin push-pull Resolution 12 bit + sign = 4.096 steps
Sampling period	1 ms 0.25 ms FAST MODE (IN1)
Display	LCD 128 x 64 pixels, size 72 x 40 mm Illumination Height of characters 6 mm
Input	Membrane keypad
Interface	USB 2.0 Online speed 20 ms ACT-MIN-MAX
Display functions	Difference; addition; power; volumes ACT; MIN; MAX; FS; TEMP
Measured value memory	Measured value memory: 1 000 000 points Curve memory: 250 000 points Data format: ACT: MIN-MAX FAST (0.25 ms) Memory configuration: interval (e.g. 5 ms) points per channel (2.000)
Environmental conditions	Ambient temperature: 0 . . 50 °C Storage temperature: -25 °C . . 60 °C Temperature error: 0.02 %/°C Relative humidity: <80 % Degree of protection: EN 60529 IP 54 (water splash/oil) Drop test IEC 60068-2-32
CE	DIN/EN 61000-6-2 DIN/EN 61000-6-3
Power supply (external)	11 ... 30 VDC Power supply unit 110/240 VAC - 15 VDC Car adapter 12/24 VDC
Battery	NiMH Charging time 180 minutes Operating time 8 hours

Housing	Polyamide 235 x 106 x 53 mm Weight 530 g
PC software SensoWin	Read out/depict measurement data and analyse on PC Device settings read out/process Load device settings into measuring instrument from library

13. Description of the memory functions

Configuring the measured value memory		
DATA FORMAT	ACT	During the recording interval (for example, 50 ms), the current measurement value (ACT) only will be written to the measured value memory.
	MIN-MAX	During the recording interval (for example, 50 ms) one MIN and one MAX value will be written to the measured value memory.
REC CONFIG	2 000 PTS	The selected recording time is automatically divided into a fixed number of recording intervals per channel. Example: 10 min recording time = 600 s Duration of recording interval = 600 s ÷ 2.000 = 300 ms
	REC RATE	Definition of an individual recording interval (for example, 5 ms). Based on the settings (DATA FORMAT/ REC RATE), the measuring instrument examines if the selected recording time must be extended. Example: Recording time 100 h/conflict recording time
FAST MODE		ACT measured values only are saved at a fixed recording interval of 0.5 ms via IN1. All other inputs (INx) are not in function.

Selecting the memory function: SCPT pressure/temperature sensor Recording time 60 s				
Memory function	**Setting DATA FORMAT**	**Setting REC CONFIG**	**Curve memory (points)**	**Number of measured values/points p (bar) T (°C)**
START/ STOP	ACT MIN-MAX	–	120.000	p (bar) = 15.000 T (°C) = 15.000
AUTO/ MANUAL TRIGGER	ACT MIN-MAX	2.000 PTS	250.000	p (bar) = 2.000 T (°C) = 60
		REC RATE (5 ms)	250.000	p (bar) = 12.000 T (°C) = 60

Important information about the START/STOP mode:	
START/STOP	The settings made under REC CONFIG are not relevant in this mode. The recording time is still unknown when the process of recording measured values begins. For this reason, the recording interval is dynamically optimised and appropriately adapted as the measured values are being recorded. The curve memory can store approx. 120.000 measured values. When SCPT sensors are connected, the measurement values for temperature and pressure are saved at the same recording interval.

1. Determining the number of recording intervals:			
Channels	**Measured variable**	**Number of measured values**	**Number of recording intervals**
			120.000 ÷ measurement values = number of recording intervals
Example ①			
4 (SCPT)	°C	4	
	bar	4	
	Measured values	8	120.000 ÷ 8 = 15.000
Example ②			
2 (SCPT)	°C	2	
	bar	2	
1 (SCFT)	L/min	1	
1 (SCRPM)	RPM	1	
	Measured values	6	120.000 ÷ 6 = 20.000

2. Determining the duration of the recording interval:			
Time	**Channels**	**Number of measured values**	**Duration of recording interval**
Example ①			
60 s 60.000 ms	4 (SCPT)	8	60.000 ÷ 15.000 = 4 ms
30 s 30.000 ms	4 (SCPT)	8	30.000 ÷ 15.000 = 2 ms
Example ②			
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	60.000 ÷ 20.000 = 3 ms
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	40.000 ÷ 20.000 = 2 ms

Important information about the AUTO/MANUAL TRIGGER modes	
AUTO/MANUAL TRIGGER	The settings made under REC CONFIG are relevant in this mode. The recording time is known when the process of recording measured values begins. The curve memory can store 250.000 measured values.
REC CONFIG 2 000 PTS	DURATION ÷ 2.000 = duration of the recording interval/channel When SCPT sensors are connected, the measured temperature values are saved at a recording interval of 1 second.
REC CONFIG REC RATE	Measured values are recorded at the set interval (REC RATE). When SCPT sensors are connected, the measured temperature values are saved at a recording interval of 1 second.

1. Determining the duration of the recording interval for REC CONFIG 2000 PTS:				
Time	**Channels**	**Measured variable**	**Number of measurement values**	**Duration of the recording interval**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 2.000	60.000 ÷ 2.000 = 30 ms
Stored measurement points			8.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 2.000	30.000 ÷ 2.000 = 15 ms
Stored measurement points			8.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 2.000 1 x 2.000 1 x 2.000	60.000 ÷ 2.000 = 30 ms
Stored measurement points			8.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 2.000 1 x 2.000 1 x 2.000	40.000 ÷ 2.000 = 20 ms
Stored measurement points			8.080	

2. Determining the number of recording intervals for REC CONFIG/REC RATE 5 ms:				
Time	**Channels**	**Measured variable**	**Number of measured values**	**Number of recording intervals**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 12.000	60.000 ÷ 5 = 12.000
Stored measurement points			48.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 6.000	30.000 ÷ 5 = 6.000
Stored measurement points			24.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 12.000 1 x 12.000 1 x 12.000	60.000 ÷ 5 = 12.000
Stored measurement points			48.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 8.000 1 x 8.000 1 x 8.000	40.000 ÷ 5 = 8.000
Stored measurement points			32.080	

Préface

Historique des révisions

Version	Date	Modification
1.0	12/2006	Première édition

Adresse à contacter

Parker Hannifin GmbH & Co. KG
Tube Fittings Division Europe
Postfach 12 02 06, 33652 Bielefeld
Am Metallwerk 9, 33659 Bielefeld
Téléphone +49 521/40 48-0
Télécopie +49 521/40 48-42 80
Courriel : Ermeto@parker.com
http://www.parker.com

Sommaire

Préface **131**
Historique des révisions 131

1. Consignes de sécurité/sélection du produit **135**
1.1 Utilisation conforme 135
1.2 Personnel spécialisé 135
1.3 Exactitude de la documentation technique 135
1.4 Applications haute pression 135
1.5 Service après-vente/réparation 136
1.6 Remarques concernant la mise au rebut 136

2. Version de l'appareil/contenu de la livraison **138**

3. Mise en service **139**
3.1 Chargement des accumulateurs/affichage de l'état des batteries 139
3.2 Remplacement de la batterie 139

4. Touches et fonctions **140**
4.1 Symbolisation et manipulation des menus 142

5. Raccordement des capteurs/fonctions d'affichage **144**
5.1 Format d'affichage (DISP) 145
5.2 Configuration d'affichage (LINE) 146
5.3 Compensation du zéro (ZERO) 147
5.4 Suppression des valeurs MIN/MAX (REINITIALISATION) 148
5.5 Affichage de la valeur différentielle 148
5.6 Compensation de la valeur différentielle (IN1=IN2) 149
5.7 Raccordement de capteurs tiers (SET AUX. SENSOR) 151
5.8 Messages d'erreur/avertissements 154

6. Réglages de l'appareil (SET) 156
6.1 Réglage des unités (SET-UNIT) 158
6.2 Déconnexion automatique (SET-AUTO POWER) 158
6.3 Raccordement de capteurs tiers (SET AUX. SENSOR) 158
6.4 Affichage d'applications de mesure définies (SET-PROJECT) 159
6.5 Réglage du contraste (SET-CONTRAST) 160
6.6 Réglage heure/date (SET-TIME/DATE) 160
6.7 Affichage de la version de l'appareil (SET-VERSION) 160
6.8 Réglage en usine (USER RESET) 161

7. Configuration de la mémoire des mesures (MEMORY SET) 162
7.1 Supprimer la mémoire des valeurs de mesure (MEM-DELETE MEMORY) 164
7.2 Réglage du format de données (MEM-DATA FORMAT) 164
7.3 Réglage du format d'enregistrement (MEM-REC-CONFIG) 165

8. Le menu REC 166

9. Enregistrement des valeurs de mesure 168
9.1 Paramètres de l'enregistrement des mesures (REC) 168
9.2 Le paramètre REC NAMES 169

10. Réglage et commande sur le PC 182
10.1 Raccordement au PC 182
10.2 Commande/configuration du PC 183

11. Accessoires 184

12. Caractéristiques techniques 185

13. Description des fonctions de mémorisation 187

1. Consignes de sécurité/sélection du produit

1.1 Utilisation conforme

L'appareil n'est destiné qu'aux applications décrites dans ce mode d'emploi. Toute autre utilisation est interdite et peut conduire à des accidents ou la destruction de l'appareil. De telles applications auront pour conséquence une extinction immédiate des garanties et des droits vis-à-vis du fabricant.

Une utilisation du produit sélectionné en dehors de la spécification ou le non-respect des consignes de manipulation et d'avertissement peuvent conduire à des dysfonctionnements si graves qu'il peut en résulter des dommages corporels ou matériels.

1.2 Personnel spécialisé

Ce mode d'emploi s'adresse au personnel spécialisé et formé, familiarisé avec les directives et normes en vigueur dans le domaine d'emploi.

1.3 Exactitude de la documentation technique

Ce mode d'emploi a été élaboré avec grand soin. Il n'est assuré aucune garantie quant à l'exactitude et à l'exhaustivité des données, figures et dessins. Sous réserve de modifications.

1.4 Applications haute pression

Sélection

Lors de la sélection d'organes de pression, veiller à ne pas dépasser la pression de surcharge.

En cas de dépassement de la pression de surcharge, il peut en résulter (selon la longueur/fréquence et l'amplitude des pointes de pression) une déformation mécanique de la cellule de pression.

La formation de poches d'air peut conduire par "effet Diesel" à des pointes de pression pouvant largement dépasser la pression de surcharge. La pression nominale de l'organe de pression doit être supérieure à la pression nominale régnant dans le système à mesurer.

Montage
Veuillez suivre les instructions et respecter les couples de serrage des raccords ou adaptateurs utilisés.
Filetages de raccordement : ½" BSP = 90 Nm
¼" BSP = 30 Nm

Pour les raccords hydrauliques (ERMETO) ou les flexibles hydrauliques de Parker Hannifin, veuillez respecter les pressions maximum indiquées dans les catalogues.

1.5 Service après-vente/réparation

Pour les travaux de réparation ou l'étalonnage des appareils de mesure, veuillez contacter un point de vente Parker Hannifin.

1.6 Remarques concernant la mise au rebut

Recyclage selon DEEE

En achetant notre produit, vous avez la possibilité de rendre l'appareil à Parker Hannifin lorsqu'il est en fin de vie.

La directive DEEE (Directive CE 2002/96 CE) réglemente le retour et le recyclage des équipements électriques.
Dans le commerce interentreprises, les fabricants d'appareils électriques ont l'obligation depuis le 13/08/2005 de reprendre gratuitement les appareils électriques vendus après cette date et de les recycler. Depuis cette date, il est interdit de mettre les appareils électriques aux déchets "normaux". Les appareils électriques doivent être recyclés et éliminés séparément. Tous les appareils tombant sous le coup de cette directive portent ce logo :

Que pouvons-nous faire pour vous ?

Dans ce contexte, Parker Hannifin vous offre une possibilité gratuite de nous rendre votre ancien appareil. Parker Hannifin recyclera et éliminera ensuite cet appareil selon les règles de l'art et en respect de la loi en vigueur.

Que devez-vous faire ?

Lorsque votre appareil est en fin de vie, envoyez-le par colis postal (dans un carton) au point de vente Parker Hannifin qui s'occupe de vous. Nous assumons ensuite toutes les mesures de recyclage et d'élimination nécessaires. Ceci ne vous engage à aucun frais ni désagréments.

Avez-vous d'autres questions ?

Si vous avez d'autres questions, contactez-nous ou rendez-vous sur www.parker.com

2. Version de l'appareil/contenu de la livraison

L'appareil de mesure et les capteurs permettent à l'utilisateur de mesurer tous les paramètres significatifs d'un système hydraulique.

Paramètres :

- [bar/psi] pression, Δp (pompes à détection de charge)
- [°C/°F] Température
- [L/min/G/min] (E.U) débit volumétrique
- tr/min [1/min]

L'appareil de mesure est facile à manipuler grâce à la reconnaissance automatique de capteur. L'appareil ne nécessite aucun autre paramétrage.

L'une des caractéristiques les plus importantes de l'appareil est sa fonctionnalité Plug & Work (brancher et travailler). Elle permet de mettre l'appareil de mesure immédiatement en service et d'exclure toute mesure erronée.

3. Mise en service

L'appareil de mesure est livré d'usine équipé de batteries rechargeables.

Avant la première mise en service, chargez l'accumulateur au moins pendant 3 heures. L'appareil est ensuite prêt à fonctionner.

3.1 Chargement des accumulateurs/affichage de l'état des batteries

Si la capacité de la batterie est trop faible, le symbole correspondant clignote et l'appareil de mesure est automatiquement mis hors service.

Symbole de batterie

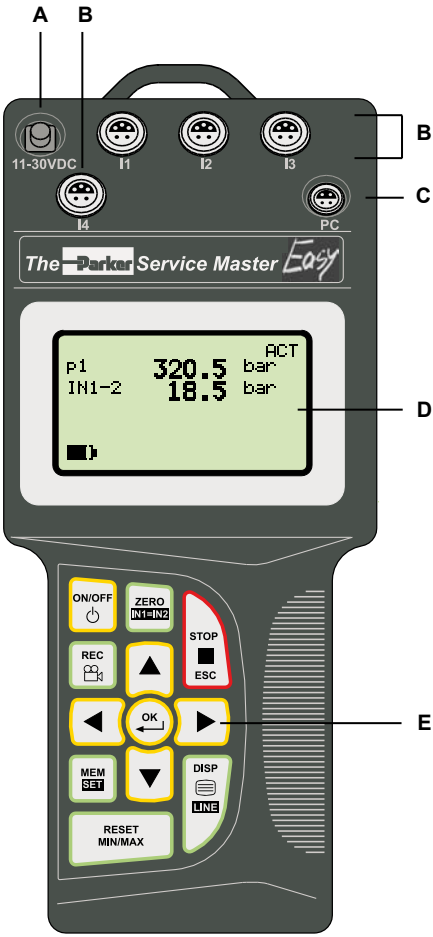
L'appareil de mesure est alimenté par l'adaptateur secteur externe ou par l'adaptateur de l'allume-cigare. La batterie peut être chargée directement. Dès que l'adaptateur secteur est raccordé, la charge commence.

► Vous trouverez des informations concernant l'adaptateur secteur externe ainsi que l'adaptateur automobile au chapitre "Accessoires".

3.2 Remplacement de la batterie

Remplacement de la batterie

4. Touches et fonctions



A **11-30 VDC**
Adaptateur secteur
110/220 VCA-15 VCC

Adaptateur automobile
12/24 VCC

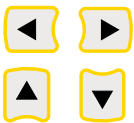
B **I1 . . I4**
Prises capteurs

C **PC (USB)**

D **Afficheur**

E **Clavier**

Touches de fonction

	MARCHE/ARRÊT
	Confirmation fonction/valeur
	**Sélection** de la fonction/valeur
	ARRÊT/ESC

Touches de menu

* Ces touches de menu ont une double affectation :
Sélection 1er niveau de menu = appui bref 1 fois
Sélection 2ème niveau de menu (sur fond noir) = appui long 1 fois (2 s)

	ZERO **IN1 = IN2**	Compensation du zéro Compensation de valeur différentielle	*
	MEM **SET**	Configuration de la mémoire Menu principal (paramètres de l'appareil)	*
	DISP **LINE**	Affichage MIN-MAX/RÉEL ou FS (pleine échelle) Configuration de l'afficheur	*
	REC	Enregistrement des mesures	
	Suppression des valeurs MIN/MAX		

FRANCAIS

4.1 Symbolisation et manipulation des menus

Si le signe ">" est affiché derrière une fonction de menu, la touche OK vous permet d'accéder à un sous-menu.
Si le caractère ":" s'affiche, la touche OK vous permet de confirmer l'entrée respective.

Symbo-les de menu	Touche	Fonction	Exemple
>		Appel d'un sous-menu/réglage	UNIT>
:		Confirmation	AUTO POWER: OFF
▲ ▼		Sélection/choix	--SET--

L'affectation des touches et les symboles situés derrière les fonctions de menu sont toujours valables et ne sont plus expliqués de manière expresse par la suite.

Effet des touches de fonction dans les menus

Si une fenêtre ou un menu comporte plusieurs fonctions, vous pouvez les sélectionner à l'aide des touches fléchées. Les touches fléchées déplacent le curseur dans le sens de la flèche.

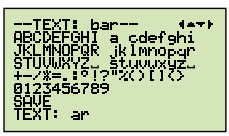
Chaque sélection d'une fonction ou d'un sous-menu doit être confirmée par OK. Chaque modification ou saisie de valeurs doit être confirmée par OK. Enregistrez tous vos paramètres en appuyant sur OK. Si vous voulez quitter un menu ou ne pas enregistrer une entrée, utilisez toujours la touche STOP/ESC. L'affectation et le fonctionnement de ces trois touches sont toujours les mêmes, peu importe dans quel menu vous vous trouvez.

En raison du fonctionnement facile à comprendre et toujours identique des touches de fonction, l'appui sur les touches n'a pas été représenté lors des opérations d'exemple, pour que le contenu des menus reste le point central de la démonstration. L'imitation des exemples présuppose de manipuler les touches de fonction selon la description.

Exemple de réglage de l'unité (texte) et de la plage de mesure (nombres) des capteurs tiers.

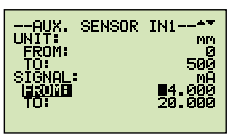
Saisie du texte :

Pour régler les unités (15 caractères maximum)



Saisie des chiffres :

Pour régler la plage de mesure et l'étendue du signal



5. Raccordement des capteurs/fonctions d'affichage

Pour éviter les perturbations électriques, veuillez observer les étapes suivantes :

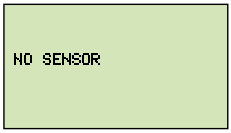
1 Raccorder le capteur à l'appareil de mesure par le câble de raccordement.

2 Mettre sous tension l'appareil de mesure.

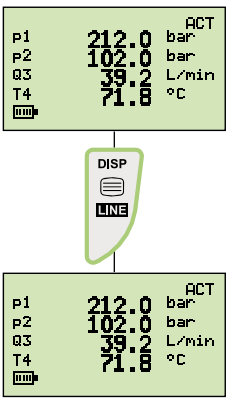
Appareil de mesure avec deux capteurs de pression

- Après la mise sous tension, toutes les mesures sont affichées à l'afficheur.
- La reconnaissance automatique de capteur assure l'affichage de la mesure ainsi que de l'unité correcte à l'afficheur.
- Il n'est pas nécessaire de procéder à d'autres réglages sur l'appareil.

- Si aucun capteur n'a été branché, le message suivant apparaît :



5.1 Format d'affichage (DISP)



DISP

Vous pouvez basculer l'affichage par **DISP** (appui bref).

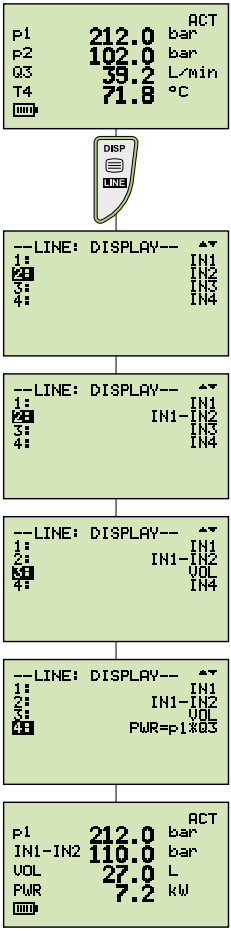
Sélection :

ACT = Valeurs réelles
MIN = Valeurs minimum
MAX = Valeurs maximum (pointes de pression)
FS = FullScale (pleine échelle)
TEMP = Affichage de la température

L'affichage **TEMP** n'est valable que pour les capteurs de type "SCPT".

FRANCAIS

5.2 Configuration d'affichage (LINE)



LINE (2 s)

Line:

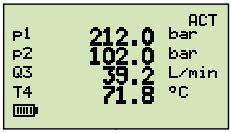
1: aucun réglage possible, inaccessible

2: Au choix :
Différence (IN1 - IN2)
Addition (IN1 + IN2)

3: **Volume** VOL= Q3 x temps

4: Au choix :
Power (puissance)
PWR1 = p1 x Q3
PWR2 = (p1-p2) x Q3

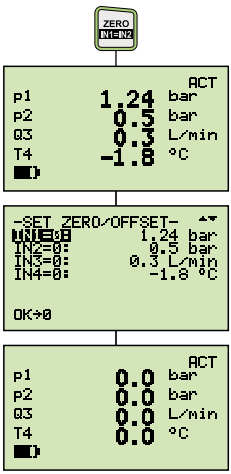
5.3 Compensation du zéro (ZERO)

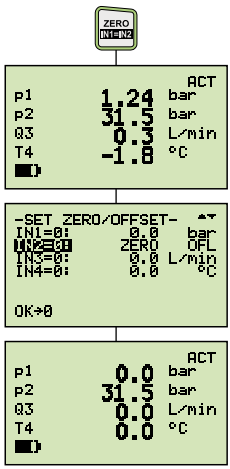


Si les valeurs de compensation sont inférieures à la tolérance (2 % de la PE), les valeurs sont mises à zéro.

Si les valeurs de compensations sont hors tolérance (2 % de la PE), l'afficheur indique : ZERO OFL.

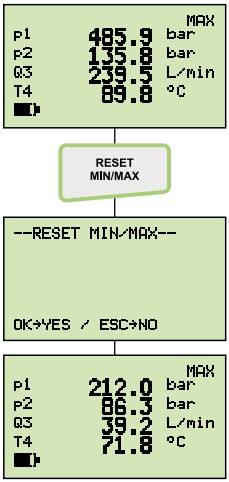
ZERO





FRANCAIS

5.4 Suppression des valeurs MIN/MAX (REINITIALISATION)



Affichage des valeurs MAX mesurées jusqu'à présent.

Les valeurs MAX sont supprimées.

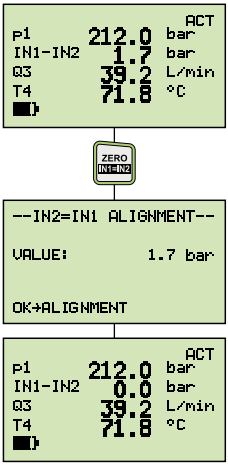
L'affichage MAX indique les valeurs MAX actualisées.

Exemple : Chute de pression dans le système hydraulique

5.5 Affichage de la valeur différentielle

► La description du réglage IN1 – IN2 se trouve au chapitre "Configuration de l'afficheur (LINE)".

5.6 Compensation de la valeur différentielle (IN1=IN2)



IN1=IN2 (2 s)

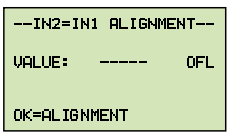
La compensation de la valeur différentielle doit être effectuée sous pression de service. Montez deux capteurs de pression sur la même prise (adaptateur T). La tolérance entre les capteurs est mise à zéro par la compensation Δp.

Ce réglage reste en mémoire et n'est valable que pour la pression de service respective.

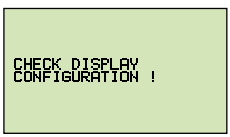
Trois messages d'erreur sont possibles pour IN1=IN2 :

1 Valeurs de compensation en dehors de la tolérance admissible :

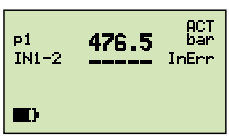
- pour les capteurs avec reconnaissance automatique de capteur, 5 % de la pleine échelle (FS)
- pour les capteurs tiers, 10 % de la pleine échelle (FS)



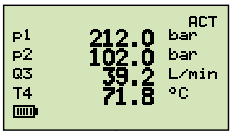
2 IN1 - IN2 n'est pas configuré (DISP-LINE) :



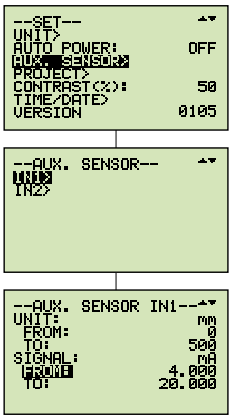
3 Grandeurs de mesure pas égales IN1=bar/IN2=L/min)



5.7 Raccordement de capteurs tiers (SET AUX. SENSOR)



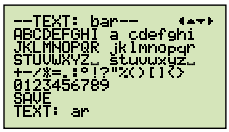
SET (2 s)



La spécification électrique des capteurs tiers doit être compatible avec l'appareil de mesure/adaptateur. Veillez à la bonne affectation des broches, à la tension d'alimentation et évitez des court-circuits électriques !

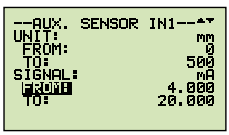
Saisie de texte UNIT/SIGNAL

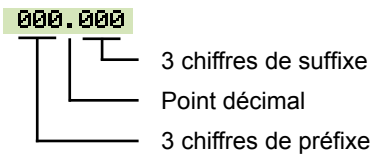
Pour régler les unités (15 caractères maximum).



Saisie de chiffres FROM/TO

Pour régler la plage de mesure et l'étendue du signal :
3 chiffres de préfixe, point décimal, 3 chiffres de suffixe.

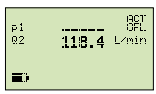
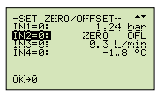
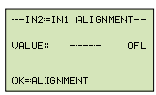
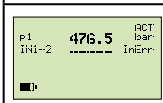


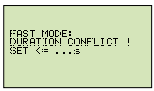


Raccordement de capteurs tiers :

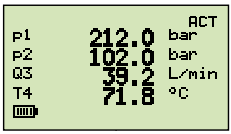
Appareil de mesure avec adaptateur et capteurs de déplacement (mm) et de force (kN).

5.8 Messages d'erreur/avertissements

Affichage	Description	Que faire ?
	Aucun capteur n'est raccordé	Mettre hors tension l'appareil de mesure. Raccorder les capteurs Mettre sous tension l'appareil de mesure.
%	Un capteur tiers est raccordé.	Dans le menu SET- AUX.SENSOR effectuer les réglages
	La reconnaissance du capteur est interrompue (rupture de câble ou entrée défectueuse).	Expédier l'appareil de mesure, le capteur et le câble de raccordement à Parker Hannifin
	Dépassement plage de mesure La pression mesurée est en dehors de la plage de mesure	Mettre le système hors pression Utiliser un capteur à plus grande plage de mesure
	Dépassement ZERO La valeur de compensation du zéro est hors tolérance	Ne tester qu'à l'état hors pression.
	Overflow IN1 = IN2 Compensation de valeur différentielle La valeur de compensation est hors tolérance	Vérifier la pression système Utiliser un capteur à plus grande plage de mesure
	DISP LINE IN1 = IN2 Réglage incorrect	Configurer IN1-IN2
	Overflow IN1 - IN2: Compensation de valeur différentielle Capteur incorrect	Grandeur de mesure (capteurs) doivent être identiques IN1 / IN2 = bar IN1 / IN2 = L/min IN1 / IN2 = °C

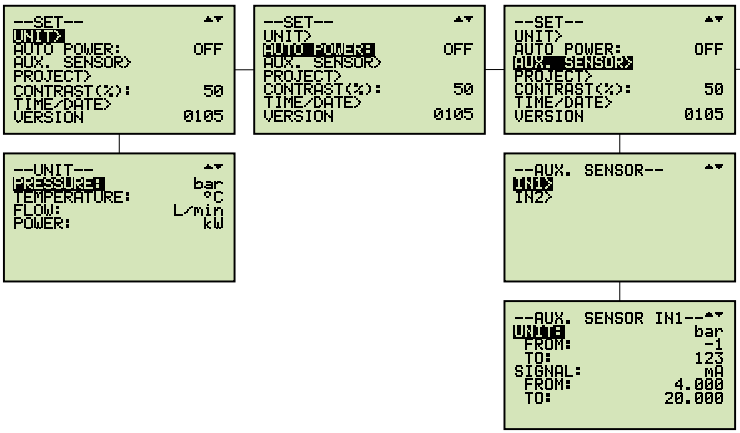
Affichage	Description	Que faire ?
	Mémoire des mesures pleine	Télécharger les mesures sur le PC Effacer la mémoire des valeurs de mesure
	Inutilisable en mode FAST MODE	Réglage REC : START-STOP/POINT FAST MODE possible uniquement pour AUTO TRIGGER MANUAL possible
	Conflit durée d'enregistrement (DURATION) FAST MODE (0,5 ms)	Réglage REC AUTO TRIGGER MANUAL Modifier durée d'enregistrement DURATION
	Conflit durée d'enregistrement (REC RATE)	Réglage MEM-SET REC CONFIG REC RATE Modifier l'intervalle d'enregistrement REC RATE. Confirmer par OK

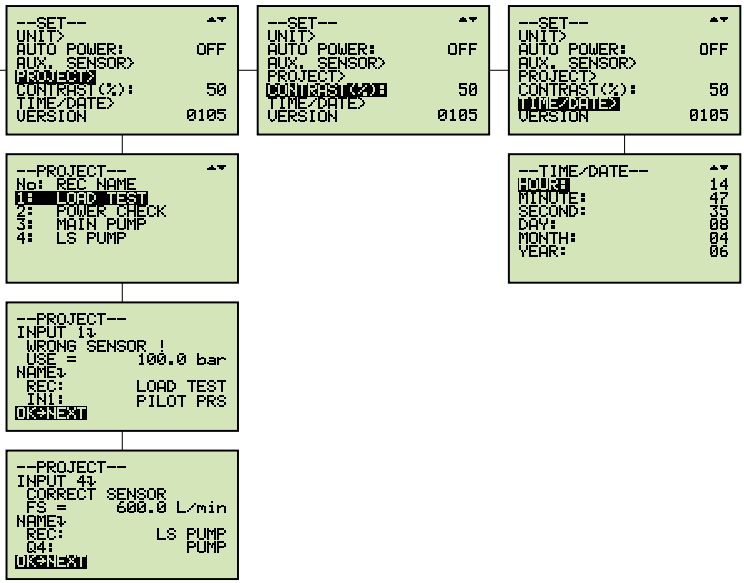
6. Réglages de l'appareil (SET)



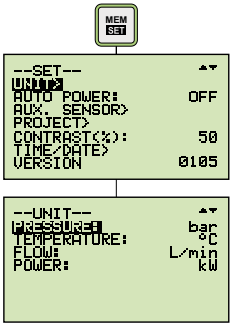
MEM SET

SET (2 s)




--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
--TIME/DATE--
HOUR: 14
MINUTE: 47
SECOND: 35
DAY: 08
MONTH: 04
YEAR: 06
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
IN1: PILOT PRS
OK→NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK→NEXT

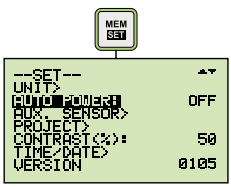
6.1 Réglage des unités (SET-UNIT)



Sélection :

PRESSURE: bar, mbar, psi ,MPa, kPa
TEMPERATURE: °C, °F
FLOW: L/min, G/min (US)
POWER: kW, HP (US)

6.2 Déconnexion automatique (SET-AUTO POWER)



Sélection :

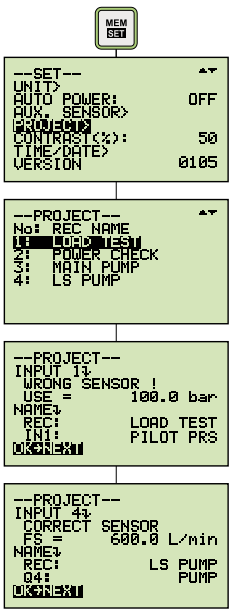
AUTO POWER: OFF, ON

6.3 Raccordement de capteurs tiers (SET AUX. SENSOR)

► Vous trouverez d'autres informations au chapitre "Raccordement de capteurs tiers".

6.4 Affichage d'applications de mesure définies (SET-PROJECT)

Dans le logiciel PC, vous pouvez configurer jusqu'à cinq tâches différentes de mesure (PROJECT). Pour chaque entrée, des capteurs spécifiques sont prédéfinis. Vous pouvez consulter ces définitions dans SET-PROJECT.



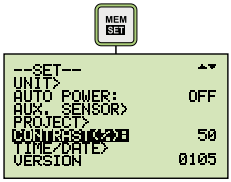
Entrée 1 (input 4)
Raccordement d'un capteur incorrect !
Utiliser la plage de mesure 100 bar.

Entrée 4 (input 4)
Capteur correct raccordé
FS = 600 L/min

Une modification de ce réglage n'est possible qu'avec le logiciel PC.

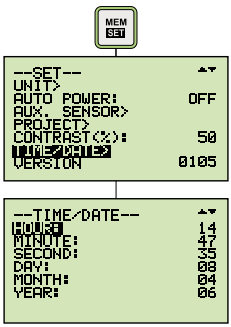
FRANCAIS

6.5 Réglage du contraste (SET-CONTRAST)



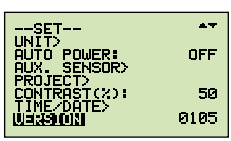
	Sélection :
CONTRAST:	10 . . 100 %

6.6 Réglage heure/date (SET-TIME/DATE)



	Sélection :
HOUR:	0 . . 23
MINUTE:	0 . . 59
SECOND:	0 . . 59
DAY:	1 . . 31
MONTH:	1 . . 12
YEAR:	1 . . 99

6.7 Affichage de la version de l'appareil (SET-VERSION)



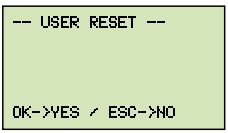
6.8 Réglage en usine (USER RESET)

Pour remettre l'appareil de mesure aux réglages d'usine, procédez comme suit :

1 Mettre hors tension l'appareil de mesure.

2 Appuyer sur la touche MEM-SET et la maintenir enfoncée.

3 Appuyer sur la touche ON/OFF.



4 Confirmer USER RESET par OK.

7. Configuration de la mémoire des mesures (MEMORY SET)

Il est possible d'effectuer les réglages suivants :

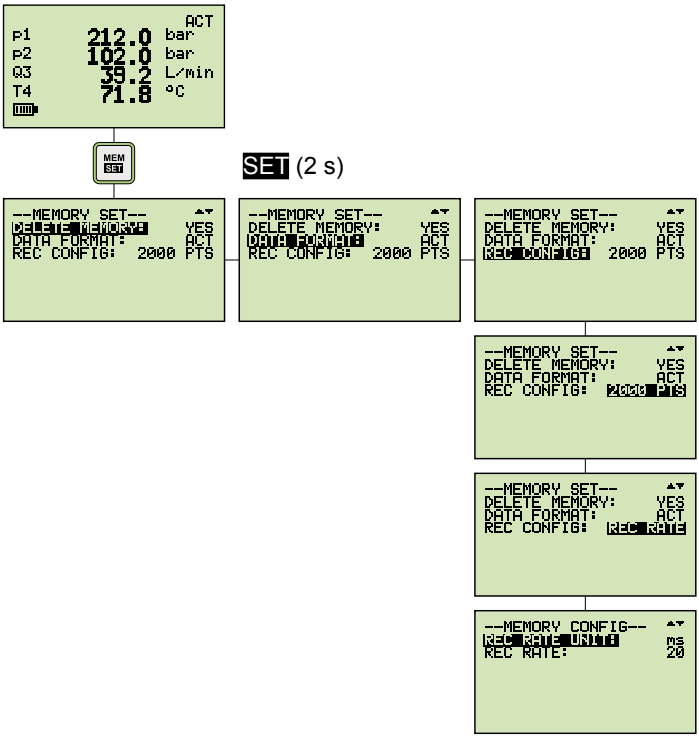
- Effacer la mémoire des valeurs de mesure
- Configurer le format de donnée des mesures
- Configurer les intervalles de mémoire

Menu	Réglage/ Présélection	Exemple	Remarque
DELETE MEMORY:	YES, NO	YES	Effacer la mémoire des valeurs mesurées
DATA FORMAT:	ACT MIN-MAX	ACT	Format de donnée des mesures **ACT =** Enregistrement des valeurs réelles **MIN-MAX =** Enregistrement des valeurs MIN-MAX
REC CONFIG:	REC RATE 2.000 PTS	2.000 PTS	**REC RATE =** Paramétrage d'un intervalle mémoire individuel **2.000 PTS =** Subdivision de la durée de mémorisation en 2 000 intervalles de mémorisation
REC RATE UNIT:	ms, s, h	ms	Présélection de l'unité de temps (intervalle de mémorisation)
REC RATE:	Nombre	20	Réglage 20 ms

Si vous définissez d'autres valeurs ACT, des mesures importantes ne seront éventuellement pas enregistrées si l'intervalle de mémorisation a été choisi trop grand.

Exemple :

Sur un intervalle d'enregistrement de 200 millisecondes, aucune valeur MIN-MAX dynamique n'est enregistrée. C'est pourquoi pour les mesures dynamiques (pointes de pression), nous recommandons le réglage MIN-MAX.



7.1 Supprimer la mémoire des valeurs de mesure (MEM-DELETE MEMORY)

MEM SET

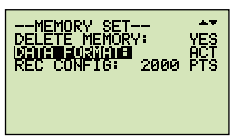
Appuyer (bref) :

Sélection :

DELETE MEMORY: YES/NO

En confirmant par la touche OK, vous effacez la mémoire des mesures.

7.2 Réglage du format de données (MEM-DATA FORMAT)

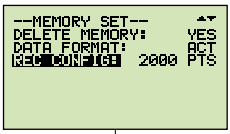


Sélection :

DATA FORMAT: ACT
MIN/MAX
FAST

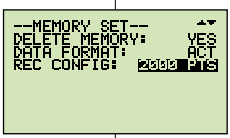
En réglage FAST, la mesure est effectuée et enregistrée sur IN1 à un intervalle de mémorisation de 0,5 ms.

7.3 Réglage du format d'enregistrement (MEM-REC-CONFIG)



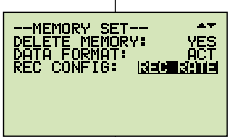
REC CONFIG

Vous pouvez régler deux formats différents :



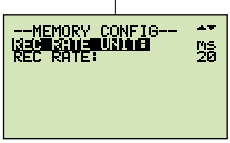
a. Format 2.000 PTS

Les courbes de mesure sont mémorisées à une résolution de 2 000 intervalles (points).



b. Format REC RATE

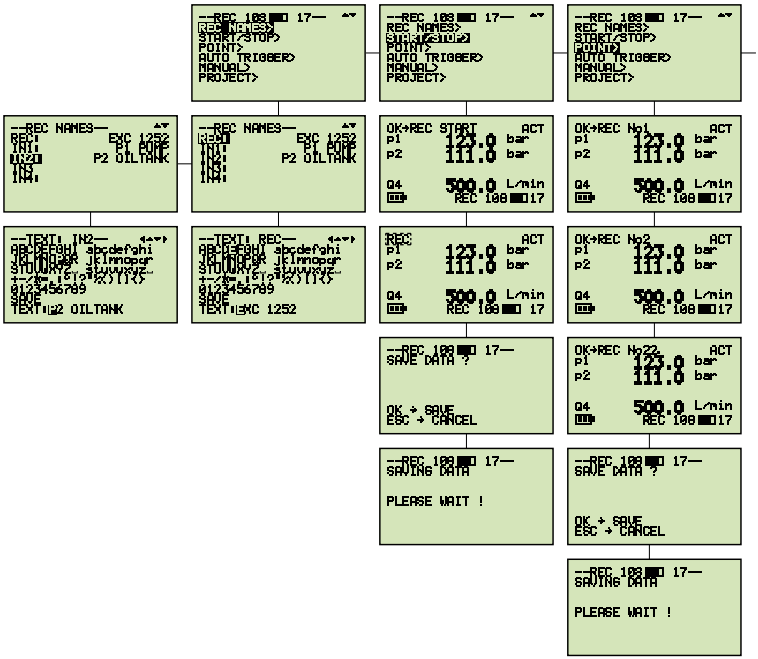
Les courbes de mesure sont enregistrées à un intervalle défini.

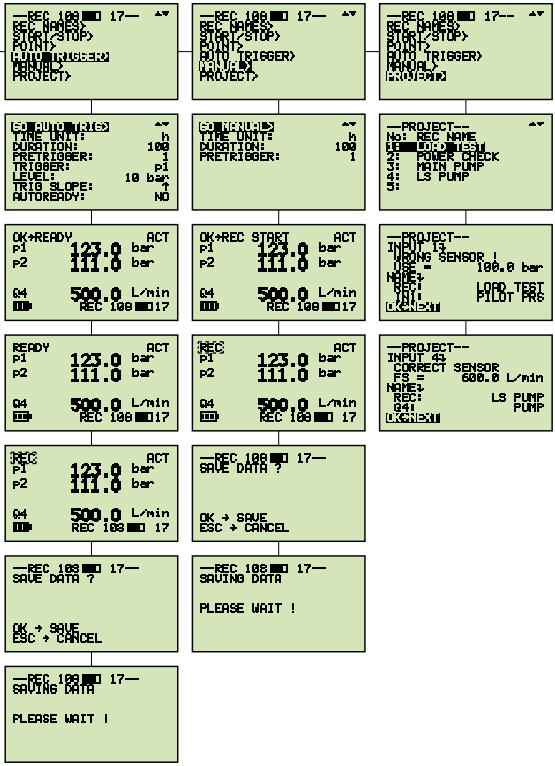


Exemple : 20 ms

FRANCAIS

8. Le menu REC

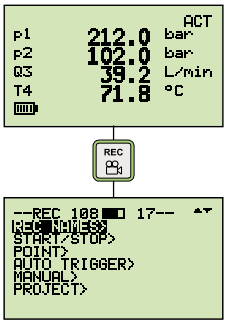

--REC 100 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--REC NAMES--
REC: EXC 1252
IN1: P1 PUMP
IN2: P2 OILTANK
IN3:
IN4:
--TEXT: IN2--
ABCDEFGHIJ abcdefghi
JKLMNOPQR jklmnopqr
STUVWXYZ stuvwxyz
+-/*= !&?@#%$^~`|\{}[]<>
0123456789
SAVE
TEXT: P2 OILTANK
--TEXT: REC--
TEXT: EXC 1252
OK→REC START ACT
p1 127.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
OK→REC No1 ACT
OK→REC No2 ACT
OK→REC No22 ACT
--REC 100 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
SAVING DATA
PLEASE WAIT !


REC 100 17
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
OK+READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
OK+REC START ACT
READY ACT
REC ACT
SAVE DATA ?
OK → SAVE
ESC → CANCEL
SAVING DATA
PLEASE WAIT !
PROJECT
No: REC NAME
1: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
INPUT 1%
WRONG SENSOR !
USE = 100.0 bar
MORE>
REC1 LOAD TEST
TAT1 PILOT PRS
INPUT 4%
CORRECT SENSOR
FS = 600.0 L/min
REC1 LS PUMP
Q4! PUMP

FRANCAIS

9. Enregistrement des valeurs de mesure

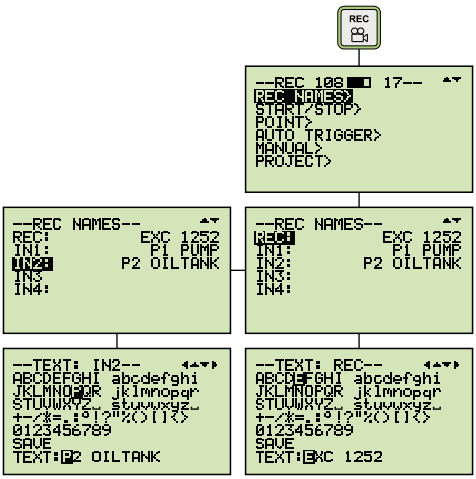
9.1 Paramètres de l'enregistrement des mesures (REC)



La ligne d'en-tête affiche les paramètres suivants :

REC 108	Nombre d'enregistrements de mesures. Dans ce paramètre, 108 mesures sont enregistrées dans la mémoire.
	Affectation de la mémoire
17--	Nombre d'enregistrements de mesures encore possibles. 17 mesures supplémentaires peuvent être enregistrées avec le paramètre/la configuration actuelle.
	Pendant l'enregistrement de la mesure, le symbole REC clignote.

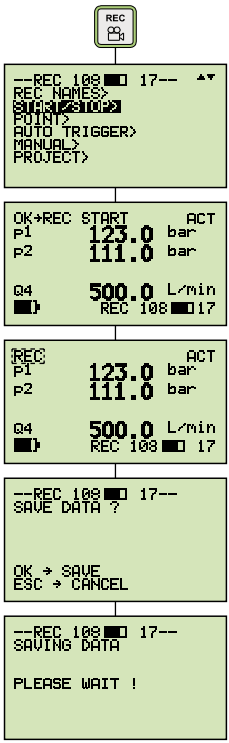
9.2 Le paramètre REC NAMES



Les désignations (noms) pour les mesures et les canaux IN1/IN2/IN3/IN4 sont définies dans le champ de saisie de texte/chiffres. Ces paramètres restent dans la mémoire de l'appareil de mesure.

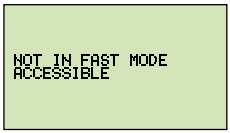
Fonction d'enregistrement MARCHE/ARRÊT

Le démarrage (touche START) et l'arrêt (touche STOP/ESC) de l'enregistrement de la mesure sont commandés par l'utilisateur.

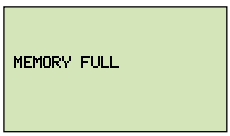


Le format de données FAST (intervalle d'enregistrement valeurs ACT en 0,5 ms) ne peut pas être appliqué en mode MARCHE/ARRET (START/STOP).

Le message suivant apparaît :

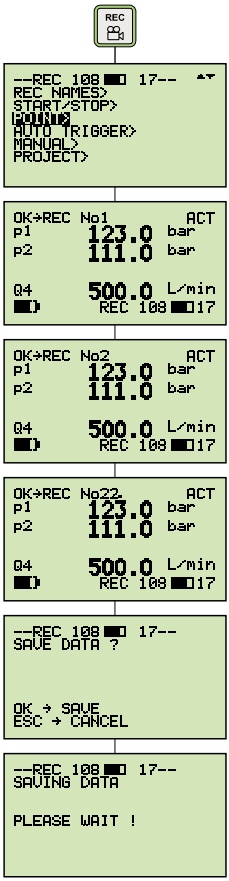


S'il n'y a pas suffisamment de place dans la mémoire des mesures, le message suivant apparaît :



Fonction d'enregistrement POINT

Les points de mesure représentant un cycle précis de la machine (p.ex. lever, baisser, fonctionnement en charge, fonctionnement à vide etc.), sont enregistrés dans une courbe "point par point". Dans l'exemple, les canaux p1, p2 et Q4 sont raccordés.



Le premier enregistrement est effectué, p.ex. p1, p2 et Q4

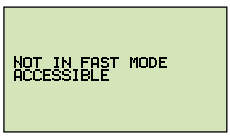
Le deuxième enregistrement est effectué, p.ex. p1, p2 et Q4

Le troisième enregistrement est effectué, p.ex. p1, p2 et Q4

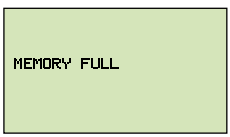
La touche OK permet de sauvegarder les enregistrements. La touche STOP/ESC arrête l'enregistrement de la mesure et toutes les données sont sauvegardées dans la mémoire des mesures.

Le format de données FAST (intervalle d'enregistrement valeurs ACT en 0,5 ms) ne peut pas être appliqué en mode MARCHE/ ARRET (START/STOP).

Le message suivant apparaît :



S'il n'y a pas suffisamment de place dans la mémoire des mesures, le message suivant apparaît :



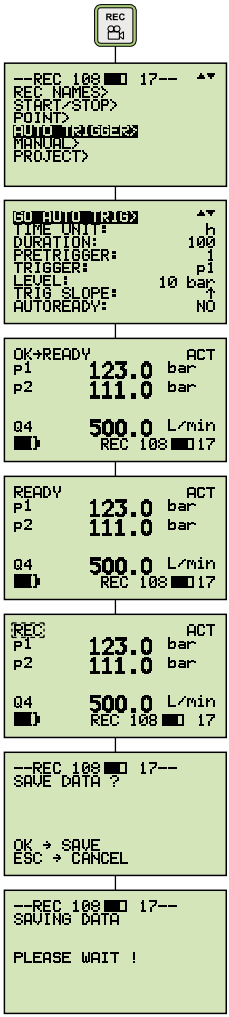
Fonction d'enregistrement AUTO TRIGGER

La fonction Auto Trigger décrit l'enregistrement d'une mesure déclenchée par un signal particulier de démarrage (p. ex. pression sur canal 2 → 125 bar). Ensuite, l'enregistrement automatique de la mesure est déclenché. Il se termine à la fin de l'intervalle de mesure préalablement ajusté.

Lors de l'enregistrement de la mesure, le système mesure des fonctions dépendantes du temps (p. ex. séquence de mise en service ou cycles de fabrication).

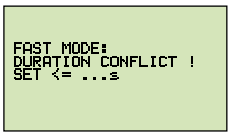
Les paramètres suivant doivent être réglés :

Menu	Réglage/Présélection	Valeurs	Remarque
TIME UNIT>	sec, hrs	h	Présélection de l'unité de temps (intervalle de déclenchement /prédéclench.)
DURATION>	Nombre	100	Saisie de la durée d'enregistrement
PRE TRIGGER>	Nombre	1	Saisie de la période PreTrigger (durée avant le signal de déclenchement)
TRIGGER>	IN	p1	Canal de mesure du point de départ
LEVEL>	Nombre	125 bar	Valeur du point de départ
TRIG SLOPE>	▲ ▼	▲	Front montant ou descendant
AUTO READY>	YES, NO	YES	Répétition automatique de l'enregistrement de la mesure


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
GO AUTO TRIG
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
OK→READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

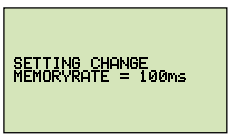
En cas de conflit entre la durée d'enregistrement et les intervalles réglés, les messages suivants apparaissent :

1. FAST MODE



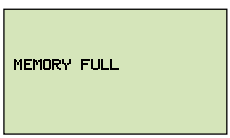
Configuration d'un intervalle d'enregistrement plus long

2. REC RATE



Configuration d'un intervalle d'enregistrement plus long

S'il n'y a pas suffisamment de place dans la mémoire des mesures, le message suivant apparaît :



Effacer la mémoire des mesures ou la transmettre au PC.

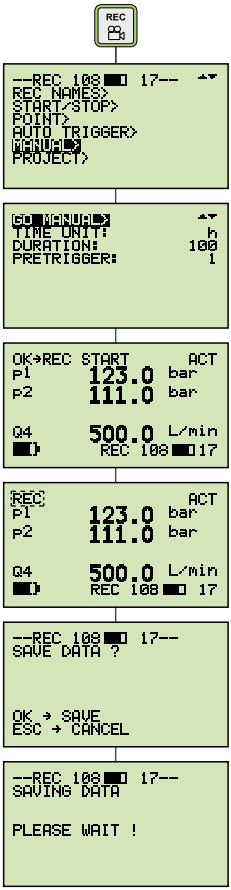
Fonction d'enregistrement MANUAL

La fonction de déclenchement manuelle (Trigger) décrit l'enregistrement d'une mesure déclenché par un signal de démarrage manuel de l'utilisateur. Après écoulement d'une période de mesure préréglée, l'enregistrement de la mesure se termine automatiquement.

Ceci permet de lancer manuellement des enregistrements de mesure en fonction du temps.

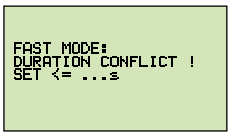
Les paramètres suivant doivent être réglés :

Menu	**Réglage/ Présélection**	**Exemple**	**Remarque**
TIME UNIT>	sec, hrs	h	Présélection de l'unité de temps (intervalle de déclenchement/prédéclench.)
DURATION>	Nombre	100	Saisie de la durée d'enregistrement
PRE TRIGGER>	Nombre	1	Saisie de la période PreTrigger (intervalle avant le signal de déclenchement)
TRIGGER>	IN	p1	Canal de mesure du point de départ


REC
--REC 108 17--
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
GO MANUAL>
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
OK→REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

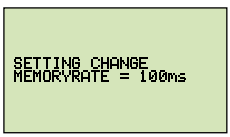
En cas de conflit entre la durée d'enregistrement et les intervalles réglés, les messages suivants apparaissent :

1. FAST MODE



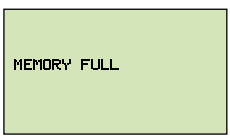
Configuration d'un intervalle d'enregistrement plus long

2. REC RATE



Configuration d'un intervalle d'enregistrement plus long

S'il n'y a pas suffisamment de place dans la mémoire des mesures, le message suivant apparaît :



Effacer la mémoire des mesures ou la transmettre au PC.

Enregistrement de la mesure par préréglage PROJECT

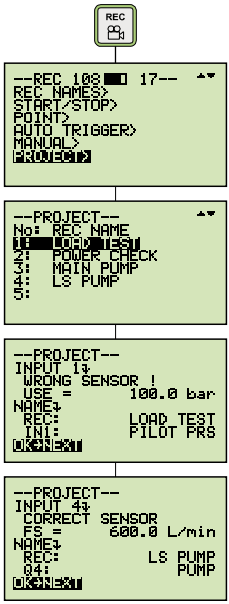
Avec ce paramètre, les mesures sont effectuées avec une certaine configuration des capteurs. Cette configuration est prédéterminée par l'utilisateur à l'aide du logiciel PC. Ceci permet d'éviter des mesures erronées et des réglages incorrects.

Le préréglage des paramètres peut être modifié dans le logiciel PC ou être transféré vers l'appareil de mesure.

Les paramètres suivants peuvent être réglés :

Menu	**Réglage/ Présélection**		**Remarque**
REC NAME>	No: 1 . . 5	Load Test	Vous pouvez choisir entre 5 préréglages au max. (test).
INPUT>	PILOT PRS		Des capteurs spécifiques sont prévus pour chaque canal.
WRONG SENSOR !	USE	150 bar	Signale un capteur incorrect. Raccordez un capteur de pression avec FS (Full Scale, pleine échelle) correspondante sur ce canal.
CORRECT SENSOR!	FS	600 L/min	Signale que le capteur est correct. Vous pouvez raccorder le canal suivant.

Lorsque tous les capteurs sont raccordés, le type d'enregistrement respectif de la mesure (START/STOP, POINT, AUTO TRIGGER, MANUAL) est sélectionné et exécuté automatiquement.


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
INI: PILOT PRS
OK>NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK>NEXT

FRANCAIS

10. Réglage et commande sur le PC

10.1 Raccordement au PC

Appareil de mesure, PC et câble USB

1 Raccordez l'appareil de mesure au PC (câble USB)

2 Lancez le logiciel PC.

L'écran suivant apparaît :

Après confirmation, l'appareil de mesure est initialisé automatiquement et connecté au PC.

10.2 Commande/configuration du PC

Toutes les étapes et tous les réglages supplémentaires sont décrits en détail dans le logiciel PC :

- Mesure en ligne
- Lecture de la mémoire des mesures
- Définition de PROJECT
- Gestion et analyse des courbes mesurées

11. Accessoires

Bloc d'alimentation (adaptateur secteur) 110/240 VAC EUR/US/UK/AUS	SCSN-450
Câble automobile 12/24 VCC	SCK-318-05-21
Câble de raccordement 3 m 5 m Prolongateur (5 m)	 SCK-102-03-02 SCK-102-05-02 SCK-102-05-12
Capteurs de pression -1. . 15 bar 0. . 60/150/400/600/1 000 bar	 SCPT-015-02-02 SCPT-xxx-02-02
Capteurs de débit volumétrique -60. . +60 L/min -150. . 150 L/min	 SCQ-060-0-02 SCQ-150-0-02
Turbines de mesure 15/060/150/300/600/750 L/min	 SCFT-xxx-02-02
Turbine de mesure avec vanne de charge 150 L/min 300/600/750 L/min	 SCFT-150-DRV SCLV-PTQ-xxx
Compteur volumétrique 15/060/150/300 L/min	 SCVF-xxx-00-02
Capteurs de température (125 °C) Capteur à visser (M10) Capteur à main	 SCT-150-04-02 SCT-150-0-02
Tachymètre (10 000 tr/min)	 SCRPM-220
Mallette d'équipements avec insert pour SCFT-150-DRV Malette d'équipement en alu SCLV-PTQ-300 SCLV-PTQ-600/750	 SCC-560 SCC-750 SCC-PTQ-300 SCC-PTQ-600

12. Caractéristiques techniques

Entrée	Détection de capteur (p/T/Q/n) Raccordement de capteurs tiers Fiche de raccordement 5 broches pousser-tirer Résolution 12 bits + signe = 4 096 pas	
Intervalle d'échantillonnage	1 ms 0,25 ms FAST MODE (IN1)	
Affichage	LCD 128 x 64 pixels, surface 72 x 40 mm Eclairage Hauteur des chiffres 6 mm	
Saisie	Clavier tactile	
Interface	USB 2.0 Vitesse en ligne 20 ms ACT-MIN-MAX	
Fonctions d'affichage	Différence ; addition ; puissance ; volume ACT; MIN; MAX; FS; TEMP	
Mémoire des mesures	Mémoire des mesures : Mémoire des courbes : Format de données : Configuration de la mémoire :	1 000 000 points 250 000 points ACT MIN-MAX FAST (0,5 ms) IN1 Intervalle (p. ex. 5 ms) points par voie (2.000)
Conditions environnementales	Température ambiante : Température de stockage : Erreur de température : Humidité relative : Indice de protection : Test de chute	0 . . 50 °C -25 °C . . 60 °C 0,02 %/°C <80 % EN 60529 IP 54 (projections d'eau/huile) CEI 60068-2-32
CE	DIN/EN 61000-6-2 DIN/EN 61000-6-3	

Alimentation en tension (externe)	11 à 30 VCC Adaptateur secteur 110/240 VCA - 15 VCC Adaptateur automobile (12/24 VCC)
Batterie	NiMH durée de charge 180 minutes Autonomie 8 heures
Boîtier	Polyamide 235 x 106 x 53 mm poids 530 g
Logiciel PC SensoWin	Lire/afficher les mesures et les analyser sur PC Lire/éditer les paramètres de l‘appareil Charger les paramètres d‘appareil de la bibliothèque sur l‘appareil de mesure

13. Description des fonctions de mémorisation

Configuration de la mémoire des mesures		
DATA FORMAT	ACT	Pendant l'intervalle d'enregistrement (p.ex 50 ms) seule la mesure actuelle (ACT) est enregistré dans la mémoire des mesures.
	MIN-MAX	Pendant l'intervalle d'enregistrement (p. ex. 50 ms), une valeur MIN et une valeur MAX sont enregistrées dans la mémoire des mesures.
REC CONFIG	2.000 PTS	La durée d'enregistrement sélectionnée est automatiquement séparée en un nombre fixe d'intervalles de mémorisation par canal. Exemple : Intervalle de mémorisation 10 min = 600 s Durée de l'intervalle de mémorisation = 600 s ÷ 2.000 = 300 ms
	REC RATE	Définition d'un intervalle de mémorisation individuel (p. ex. 5 ms) L'appareil de mesure vérifie à partir des réglages (DATA FORMAT/REC RATE) si la durée d'enregistrement sélectionnée doit être modifiée. Exemple : Durée d'enregistrement 100 h/conflit durée d'enregistrement
FAST MODE		Seules les mesures ACT sont enregistrées à un intervalle fixe de 0,5 ms par IN1. Toutes les autres entrées (INx) ne sont pas opérationnelles.

Sélection de la fonction mémoire : Capteur de pression/température SCPT Durée de mémorisation 60 s				
Fonction d'enregistrement	**Réglage DATA FORMAT**	**Réglage REC CONFIG**	**Mémoire des courbes (points)**	**Nombre de mesures/ points p (bar) T (°C)**
START/ STOP	ACT MIN-MAX	–	120.000	p (bar) = 15.000 T (°C) = 15.000
AUTO/ MANUAL TRIGGER	ACT MIN-MAX	2.000 PTS	250.000	p (bar) = 2.000 T (°C) = 60
		REC RATE (5 ms)	250.000	p (bar) = 12.000 T (°C) = 60

Particularités du mode START/STOP :	
START STOP	Dans ce mode, les réglages sous REC CONFIG ne sont pas significatifs. Lorsque l'enregistrement des mesures démarre, la durée d'enregistrement n'est pas encore connue. C'est pourquoi l'intervalle d'enregistrement est optimisé en dynamique pendant l'enregistrement des mesures et adapté en conséquence. La mémoire des courbes a une capacité d'env. 120.000 mesures. Lors de la connexion de capteurs SCPT, les mesures de température et de pression sont enregistrées avec le même intervalle d'enregistrement.

1. Détermination du nombre d'intervalles d'enregistrement :			
Canaux	**Grandeur de mesure**	**Nombre mesures**	**Nombre d'intervalles d'enregistrement**
			120.000 ÷ Mesures = nombre d'intervalles d'enregistrement
Exemple ①			
4 (SCPT)	°C	4	
	bar	4	
	Mesures	8	120.000 ÷ 8 = 15.000
Exemple ②			
2 (SCPT)	°C	2	
	bar	2	
1 (SCFT)	L/min	1	
1 (SCRPM)	RPM	1	
	Mesures	6	120.000 ÷ 6 = 20.000

2. Détermination de la longueur de l'intervalle d'enregistrement :			
Durée	**Canaux**	**Nombre mesures**	**Longueur intervalle d'enregistrement**
Exemple ①			
60 s 60.000 ms	4 (SCPT)	8	60.000 ÷ 15.000 = 4 ms
30 s 30.000 ms	4 (SCPT)	8	30.000 ÷ 15.000 = 2 ms
Exemple ②			
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	60.000 ÷ 20.000 = 3 ms
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	40.000 ÷ 20.000 = 2 ms

Particularités en mode AUTO/MANUAL TRIGGER :	
AUTO/MANUAL TRIGGER	Dans ce mode, les réglages sous REC CONFIG sont significatifs. Lorsque l'enregistrement des mesures démarre, la durée d'enregistrement est connue. La mémoire des courbes a une capacité d'env. 250.000 mesures.
REC CONFIG 2.000 PTS	DURATION ÷ 2.000 = longueur de l'intervalle/canal Lors de la connexion de capteurs SCPT, les mesures de température sont enregistrées à un intervalle d'enregistrement d'une seconde.
REC CONFIG REC RATE	L'enregistrement des mesures est effectuée selon l'intervalle réglé (REC RATE). Lors de la connexion de capteurs SCPT, les mesures de température sont enregistrées à un intervalle d'enregistrement d'une seconde.

1. Définition de la longueur de l'intervalle d'enregistrement pour REC CONFIG 2000 PTS:				
Durée	**Canaux**	**Grandeur de mesure**	**Nombre mesures**	**Longueur intervalle d'enregistrement**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 2.000	60.000 ÷ 2.000 = 30 ms
points de mesure enregistrés			8.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 2.000	30.000 ÷ 2.000 = 15 ms
points de mesure enregistrés			8.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 2.000 1 x 2.000 1 x 2.000	60.000 ÷ 2.000 = 30 ms
points de mesure enregistrés			8.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 2.000 1 x 2.000 1 x 2.000	40.000 ÷ 2.000 = 20 ms
points de mesure enregistrés			8.080	

2. Détermination du nombre d'intervalles d'enregistrement pour REC CONFIG/REC RATE 5 ms :				
Durée	**Canaux**	**Grandeur de mesure**	**Nombre mesures**	**Nombre d'intervalles d'enregistrement**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 12.000	60.000 ÷ 5 = 12.000
points de mesure enregistrés			48.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 6.000	30.000 ÷ 5 = 6.000
points de mesure enregistrés			24.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 12.000 1 x 12.000 1 x 12.000	60.000 ÷ 5 = 12.000
points de mesure enregistrés			48.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 8.000 1 x 8.000 1 x 8.000	40.000 ÷ 5 = 8.000
points de mesure enregistrés			32.080	

Premessa

Revisioni

Versione	Data	Modifica
1.0	12/2006	Prima edizione

Indirizzo

Parker Hannifin GmbH & Co. KG
Tube Fittings Division Europe
Postfach 12 02 06, 33652 Bielefeld
Am Metallwerk 9, 33659 Bielefeld
Telefon +49 521/40 48-0
Fax +49 521/40 48-42 80
E-Mail: Ermeto@parker.com
http://www.parker.com

Contenuto

Premessa **195**
Revisioni 195

1. Norme di sicurezza/Scelta del prodotto **199**
1.1 Utilizzo conforme alla finalità d'uso 199
1.2 Personale specializzato 199
1.3 Correttezza della documentazione tecnica 199
1.4 Applicazioni ad alta pressione 199
1.5 Manutenzione e riparazione 200
1.6 Istruzioni per lo smaltimento 200

2. Versione dello strumento e standard di fornitura **202**

3. Messa in funzione **203**
3.1 Come caricare gli accumulatori/Indicatore di stato delle batterie 203
3.2 Sostituzione delle batterie 203

4. Taste e funzioni **204**
4.1 Simboli e azionamento dei menu 206

5. Collegamento dei sensori/funzioni del display **208**
5.1 Formato di visualizzazione (DISP) 209
5.2 Configurazione del display (LINE) 210
5.4 Cancellazione dei valori MIN/MAX (RESET) 212
5.5 Visualizzazione dei valori differenziali 212
5.6 Compensazione delle differenze (IN1=IN2) 213
5.7 Collegamento dei sensori esterni (SET AUX. SENSOR) 215
5.8 Messaggi di errore/avvisi 218

6. Impostazioni dello strumento (SET) 220
6.1 Impostazione delle unità (SET-UNIT) 222
6.2 Spegnimento automatico (SET-AUTO POWER) 222
6.3 Impostazione dei sensori esterni (SET AUX. SENSOR) 222
6.4 Visualizzazione dei compiti di misura definiti (SET-PROJECT) 223
6.5 Impostazione del contrasto (SET-CONTRAST) 224
6.6 Impostazione data/ora (SET-TIME/DATE) 224
6.7 Indicazione della versione dello strumento (SET-VERSION) 224
6.8 Impostazione di fabbrica (USER RESET) 225

7. Configurazione della memoria dei valori misurati (MEMORY SET) 226
7.1 Cancellazione della memoria dei valori misurati (MEM-DELETE MEMORY) 228
7.2 Impostazione del formato dati (MEM-DATA FORMAT) 228
7.3 Impostazione della registrazione del formato (MEM-REC-CONFIG) 229

8. Il menu REC 230

9. Salvataggio dei valori misurati 232
9.1 Impostazioni per il salvataggio dei valori misurati (REC) 232
9.2 Impostazione REC NAMES 233

10. Impostazione e azionamento sul PC 246
10.1 Collegamento al PC 246
10.2 Azionamento/configurazione del PC 247

11. Accessori 248

12. Dati tecnici 249

13. Descrizione delle funzioni di memoria 251

1. Norme di sicurezza/Scelta del prodotto

1.1 Utilizzo conforme alla finalità d'uso

L'apparecchio è adatto esclusivamente per le applicazioni descritte nelle istruzioni per l'uso. Un utilizzo diverso è da considerarsi inammissibile e potrebbe causare incidenti o la distruzione dell'apparecchio. Tali utilizzi comportano l'annullamento immediato della garanzia nei confronti del produttore.

Un utilizzo del prodotto che non rispetti le specifiche indicate ovvero la mancata osservanza delle istruzioni per l'uso e degli avvertimenti potrebbero causare problemi di funzionamento che a loro volta potrebbero mettere a rischio persone e cose.

1.2 Personale specializzato

Le presenti istruzioni per l'uso si rivolgono a personale specializzato che abbia acquisito familiarità con le disposizioni e le norme del settore.

1.3 Correttezza della documentazione tecnica

Le presenti istruzioni per l'uso sono state redatte con la massima cura. Si declina ogni responsabilità per quanto riguarda la correttezza e la completezza di dati, figure e disegni. Con riserva di modifiche.

1.4 Applicazioni ad alta pressione

Selezione

Quando si scelgono gli elementi di pressione, non bisogna superare la pressione di sovraccarico.

Se si supera la pressione di sovraccarico, (a seconda della lunghezza/frequenza e del livello del picco di pressione) potrebbe verificarsi una deformazione meccanica della cella di pressione.

Le inclusioni di aria potrebbero causare un "effetto diesel", con il conseguente incremento della pressione di sovraccarico. La pressione nominale dell'elemento di pressione deve essere superiore alla pressione nominale presente nel sistema da misurare.

Montaggio
Attenersi alle avvertenze e rispettare i momenti torcenti corretti per gli avvitamenti o l'adattatore utilizzati.
Filettatura di raccordo: ½" BSP = 90 Nm
¼" BSP = 30 Nm

Nel caso degli avvitamenti idraulici (ERMETO) o dei tubi flessibili idraulici di Parker Hannifin, prestare attenzione alle pressioni massime indicate nei cataloghi.

1.5 Manutenzione e riparazione

Per la riparazione o la calibrazione degli strumenti di misura, rivolgersi a una filiale di vendita Parker Hannifin.

1.6 Istruzioni per lo smaltimento

Riciclaggio secondo WEEE

Acquistando un nostro prodotto, il cliente ha la possibilità di restituire a Parker Hannifin l'apparecchio al termine del proprio ciclo di vita.

La direttiva WEEE (direttiva UE 2002/96 CE) regola la restituzione e il riciclaggio delle apparecchiature elettriche ed elettroniche.
Nel settore B2B (Business to Business), a decorrere dal 13.8.2005 i produttori di apparecchiature elettriche ed elettroniche sono obbligati a ritirare e a riciclare gratuitamente le apparecchiature elettriche ed elettroniche vendute dopo questa data. Le apparecchiature elettriche ed elettroniche non devono pertanto essere più inserite nel ciclo „normale“ dei rifiuti. Le apparecchiature elettriche ed elettroniche devono essere riciclate e smaltite separatamente. Tutte gli apparecchi che rientrano in questa direttiva sono contrassegnati con il seguente logo:

Che cosa possiamo fare per i nostri clienti?

Parker Hannifin offre ai suoi clienti la possibilità di restituire gratuitamente le apparecchiature ormai obsolete. Parker Hannifin provvederà quindi a riciclare e smaltire le apparecchiature secondo la normativa vigente.

Che cosa devono fare i clienti?

Una volta che le apparecchiature hanno completato il loro ciclo di vita, basta inviarle in un pacco (cartone) alla filiale Parker Hannifin di riferimento. Sarà poi nostra cura adottare tutte le misure necessarie per il riciclaggio e lo smaltimento. Il servizio è completamente gratuito e libera i clienti da queste incombenze.

Altre domande?

Per maggiori informazioni, è possibile contattarci direttamente oppure visitare il nostro sito all'indirizzo www.parker.com.

2. Versione dello strumento e standard di fornitura

Lo strumento di misura e i sensori consentono all'utente di misurare tutti i parametri importanti all'interno di un impianto idraulico.

Parametri:

- [bar/psi] Pressione, Δp (pompe Load Sensing)
- [°C/°F] Temperatura
- [L/min/G/min] (U.S) Portata
- RPM [giri/min]

Lo strumento di misura è facile da usare grazie al riconoscimento automatico dei sensori. Non è necessario effettuare altre impostazioni.

La funzione Plug & Work è uno dei punti di forza di questo strumento. Essa consente infatti allo strumento di misura di essere immediatamente pronto per l'uso, escludendo il rischio di errori di misurazione.

3. Messa in funzione

Lo strumento di misura viene fornito di serie completo di batterie ricaricabili.

Caricare l'accumulatore per almeno 3 ore prima della messa in funzione iniziale. Dopo di che lo strumento di misura è pronto per l'uso.

3.1 Come caricare gli accumulatori/Indicatore di stato delle batterie

Se la capacità delle batterie è bassa, il simbolo della batteria lampeggia e lo strumento di misura si spegne automaticamente.

Simbolo della batteria

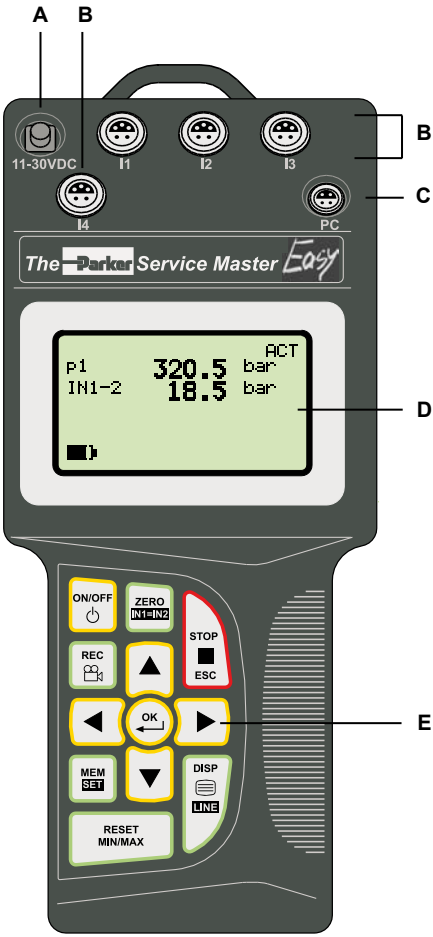
Lo strumento di misura viene azionato da un gruppo di alimentazione esterno o da un adattatore per veicoli. La batteria può essere caricata direttamente. La procedura di carica inizia non appena viene collegato lo strumento di rete.

► Per maggiori informazioni sul gruppo di alimentazione esterno e sull'adattatore, fare riferimento al capitolo „Accessori".

3.2 Sostituzione delle batterie

Sostituzione delle batterie

4. Taste e funzioni



A **11-30 VDC**
Gruppo di alimentazione
110/220 VAC-15 VDC

Adattatore per autoveicoli
12/24 VDC

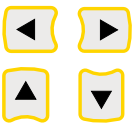
B **I1 . . I4**
Collegamento sensori

C **PC (USB)**

D **Indicazione (Display)**

E **Tastiera**

Tasti funzione

	ON/OFF
	Conferma della funzione/valore
	**Selezione** della funzione/valore
	STOP/ESC

Tasti menu

* Questi tasti menu sono doppi:
Selezione del primo livello di menu = premere brevemente per una volta
Selezione del secondo livello di menu (sfondo nero) = premere a lungo una volta (2 s)

	ZERO **IN1 = IN2**	Compensazione dello zero Compensazione delle differenze	*
	MEM **SET**	Configurazione della memoria Menu principale (impostazioni dello strumento)	*
	DISP **LINE**	MIN-MAX/EFF o FS Indicazione Configurazione del display	*
	REC	Memorizzazione del valore misurato	
	Cancellazione dei valori MIN/MAX		

4.1 Simboli e azionamento dei menu

Se dietro a una funzione di menu compare il carattere „>“, il tasto OK consente di accedere a un nuovo sottomenu.
Se viene visualizzato il carattere „:“ con il tasto OK è possibile confermare l'immissione effettuata.

Icona	Tasto	Funzione	Esempio
>		Richiamo di un sottomenu/impostazione	UNIT>
:		Conferma	AUTO POWER: OFF
▲ ▼		Selezione	--SET--

L'assegnazione dei tasti e i simboli dietro alle funzioni di menu hanno una validità generica e vengono spiegati nel dettaglio di seguito.

Effetto dei tasti funzione nell'ambito dei menu

Se una finestra o un menu presentano più funzioni, queste verranno sempre selezionate con i tasti freccia. I tasti freccia spostano il cursore nella direzione della freccia indicata.

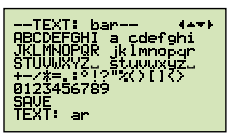
Ogni volta che viene selezionata una funzione o un sottomenu, è necessario confermare con OK. Anche la modifica o l'immissione di valori devono essere confermate con OK. Premendo OK è possibile salvare tutte le impostazioni. Per uscire da un menu o per non salvare l'immissione, utilizzare sempre il tasto STOP/ESC. L'assegnazione e il funzionamento di questi tre tasti è sempre lo stesso, indipendentemente dal menu in cui ci si trova.

In virtù dell'effetto intuitivo e sempre uguale dei tasti funzione, si è volontariamente rinunciato a mostrare i tasti nelle esemplificazioni dei processi, così da dare rilievo esclusivamente al contenuto dei menu. La simulazione degli esempi presuppone l'azionamento dei tasti funzione, come già descritto.

Esempio: impostazione dell'unità (testo) e del campo di misura (numeri) nei sensori esterni.

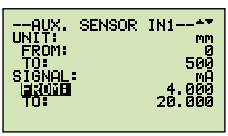
Immissione del testo:

Per impostare le unità (max. 15 caratteri)



Immissione di numeri:

Per impostare il campo di misura e la differenza di segnale



5. Collegamento dei sensori/funzioni del display

Per evitare fonti di disturbo di natura elettrica, attenersi alla seguente procedura:

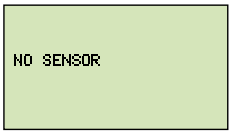
1 Collegare il sensore allo strumento di misura con il cavo di collegamento.

2 Accendere lo strumento di misura.

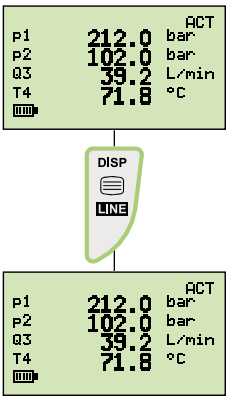
Strumento di misura con due sensori della pressione

- Dopo avere acceso lo strumento, sul display vengono visualizzati tutti i valori misurati.
- Grazie al riconoscimento automatico dei sensori, sul display viene visualizzato il valore misurato con l'unità corretta.
- Non è necessario eseguire altre impostazioni sullo strumento.

- Se allo strumento non è collegato nessun sensore, verrà visualizzato il seguente messaggio:



5.1 Formato di visualizzazione (DISP)



DISP (brevemente)

Con **DISP** (premere brevemente) è possibile cambiare la schermata.

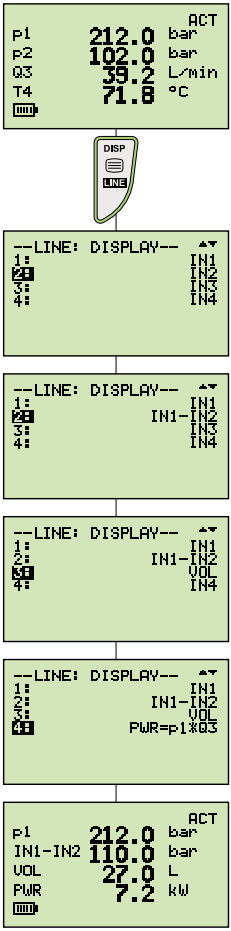
Possibilità di selezione:

ACT = Valori effettivi
MIN = Valori minimi
MAX = Valori massimi (picchi di pressione)
FS = FullScale (valore del campo di misura)
TEMP = Indicazione della temperatura

L'indicatore **TEMP** vale solo per i sensori del tipo „SCPT“.

ITALIANO

5.2 Configurazione del display (LINE)



LINE (2 s)

Line:

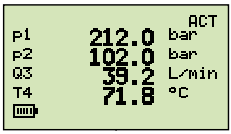
1: nessuna impostazione possibile, non selezionabile

2: Possibilità di selezione:
Sottrazione (IN1 - IN2)
Addizione (IN1 + IN2)

3: **Volume** VOL= Q3 x time

4: Possibilità di selezione:
Power
PWR1 = p1 x Q3
PWR2 = (p1-p2) x Q3

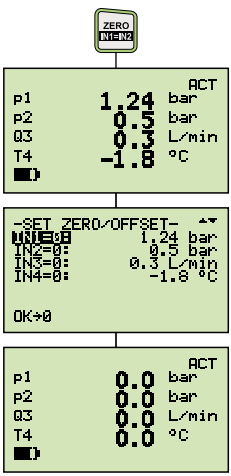
5.3 Compensazione dello zero (ZERO)

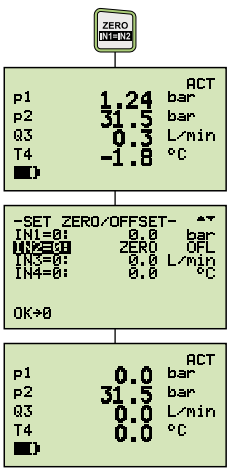


Se i valori della compensazione rientrano nella tolleranza ammissibile (2 % di FS), i valori verranno azzerati.

Se i valori della compensazione non rientrano nella tolleranza ammissibile (2 % di FS), compare: ZERO OFL.

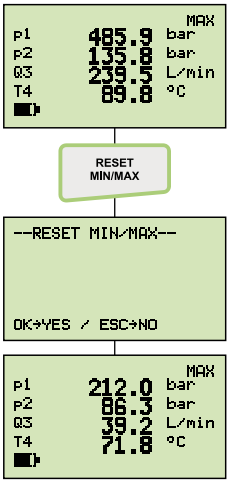
ZERO (brevemente)





ITALIANO

5.4 Cancellazione dei valori MIN/MAX (RESET)



Visualizzazione dei valori MAX finora misurati.

I valori MAX vengono cancellati.

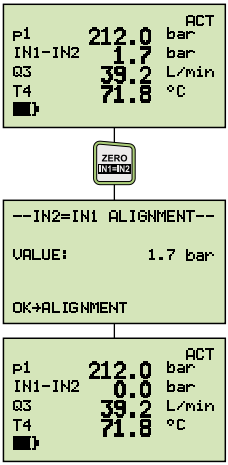
Nella visualizzazione MAX compaiono i valori MAX aggiornati.

Esempio: Caduta di pressione nel sistema idraulico

5.5 Visualizzazione dei valori differenziali

► L'impostazione IN1 – IN2 è descritta nel capitolo „Configurazione del display (LINE)“.

5.6 Compensazione delle differenze (IN1=IN2)



IN1=IN2 (2 s)

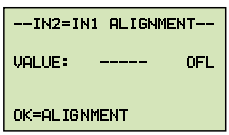
La compensazione delle differenze deve essere eseguita sotto la pressione di esercizio. Montare due sensori pneumatici sullo stesso collegamento (adattatore a T). La tolleranza tra i sensori viene azzerata tramite la compensazione Δp.

Questa impostazione rimane memorizzata ed è valida solo per la relativa pressione d'esercizio.

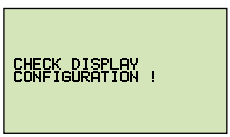
Sono possibili tre messaggi di errore per IN1=IN2:

1 Valori di compensazione al di fuori della tolleranza consentita:

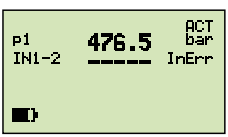
- Per i sensori con riconoscimento automatico 5 % del valore finale del campo di misura (FS)
- Nel caso dei sensori esterni 10 % del valore finale del campo di misura (FS)



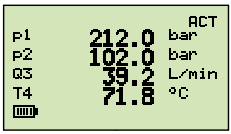
2 IN1 - IN2 non è configurato (DISP-LINE):



3 Le unità di misura non sono uguali (IN1=bar/IN2=L/min)

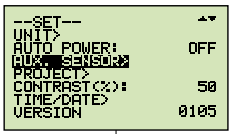


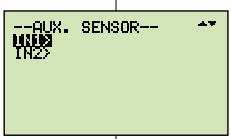
5.7 Collegamento dei sensori esterni (SET AUX. SENSOR)

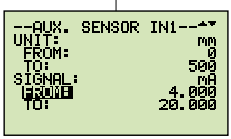


MEM SET

SET (2 s)



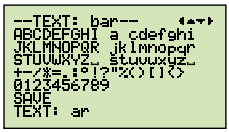




I valori elettrici dei sensori esterni devono essere compatibili con lo strumento di misura/adattatore. Prestare attenzione all'occupazione corretta dei PIN, alla tensione di alimentazione ed evitare i cortocircuiti elettrici!

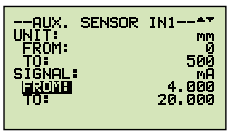
Immissione di testo UNIT/SIGNAL

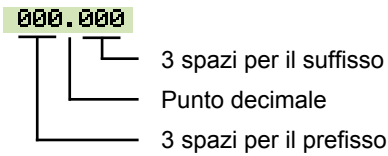
Per impostare le unità (max. 15 caratteri).



Immissione di numeri FROM/TO

Per impostare il campo di misura e la differenza di segnale:
3 cifre come prefisso, punto decimale e 3 cifre come suffisso.

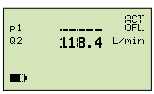
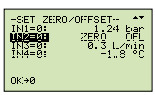
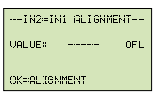
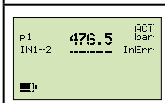
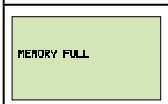


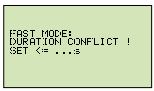


Collegamento dei sensori esterni:

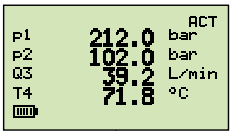
Strumento di misura con adattatore di collegamento e sensori di percorso (mm) e forza (kN).

5.8 Messaggi di errore/avvisi

Indicatore	Descrizione	Cosa fare
	Nessun sensore collegato	Spegnere lo strumento di misura Collegare i sensori Accendere lo strumento di misura
%	Sensore esterno collegato.	Eseguire le impostazioni nel menu SET- AUX.SENSOR
	Riconoscimento dei sensori interrotto (cavo rotto o input guasto)	Inviare lo strumento di misura, il sensore e il cavo di collegamento a Parker Hannifin
	Campo di misura Overflow La pressione misurata si trova all'esterno del campo di misura	Depressurizzare il sistema Utilizzare il sensore con il campo di misura più grande
	Overflow ZERO Il valore di compensazione dello zero non rientra nella tolleranza	Eseguire il controllo esclusivamente in assenza di pressione
	Overflow IN1 = IN2 Compensazione del valore differenziale Il valore di compensazione non rientra nella tolleranza	Controllare la pressione del sistema Utilizzare il sensore con il campo di misura più grande
	DISP LINE IN1 = IN2 Regolazione errata	Configurare IN1-IN2
	Overflow IN1 - IN2: Compensazione del valore differenziale	Le unità di misura (sensori) IN1 / IN2 = bar IN1 / IN2 = L/min IN1 / IN2 = °C
	Memoria dei valori misurati piena	Scaricare i valori misurati sul PC Cancella memoria valori misurati

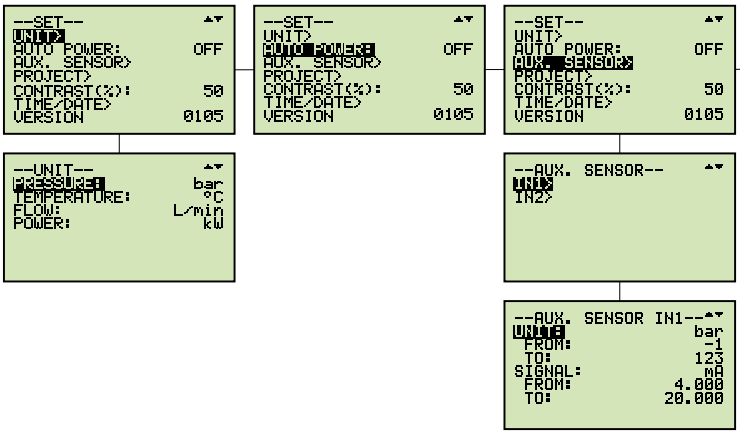
Indicatore	Descrizione	Cosa fare
	Non utilizzare nella modalità FAST MODE	Impostazione REC: START-STOP/POINT FAST MODE possibile solo per AUTO TRIGGER MANUAL
	Conflitto tempo di memorizzazione (DURATION) FAST MODE (0,5 ms)	Impostazione REC AUTO TRIGGER MANUAL Modificare il tempo di memorizzazione DURATION
	Conflitto tempo di memorizzazione (REC RATE)	Impostazione MEM-SET REC CONFIG REC RATE Modificare l'intervallo di memoria REC RATE. Conferma con OK

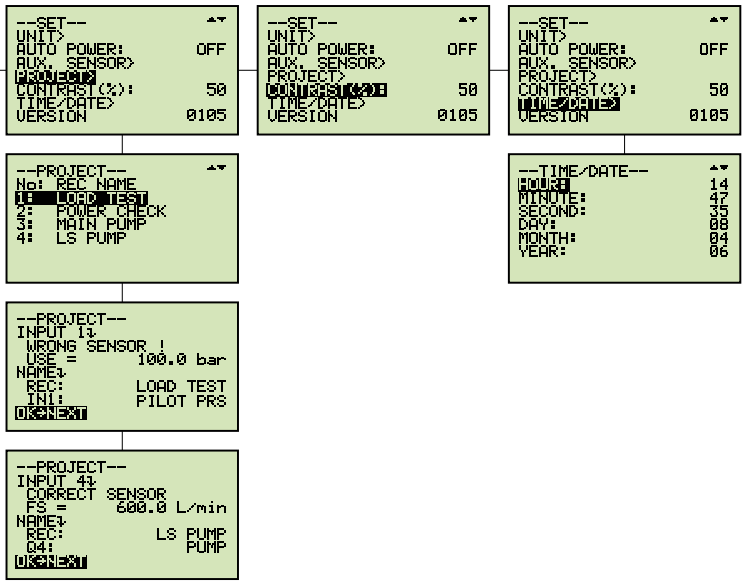
6. Impostazioni dello strumento (SET)



MEM SET

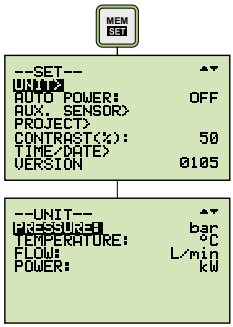
SET (2 s)




--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
--TIME/DATE--
HOUR: 14
MINUTE: 47
SECOND: 35
DAY: 08
MONTH: 04
YEAR: 06
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
IN1: PILOT PRS
OK→NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK→NEXT

ITALIANO

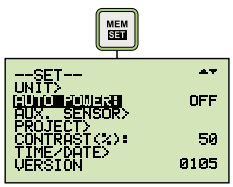
6.1 Impostazione delle unità (SET-UNIT)



Possibilità di selezione:

PRESSURE: bar, mbar, psi ,MPa, kPa
TEMPERATURE: °C, °F
FLOW: L/min, G/min (US)
POWER: kW, HP (US)

6.2 Spegnimento automatico (SET-AUTO POWER)



Possibilità di selezione:

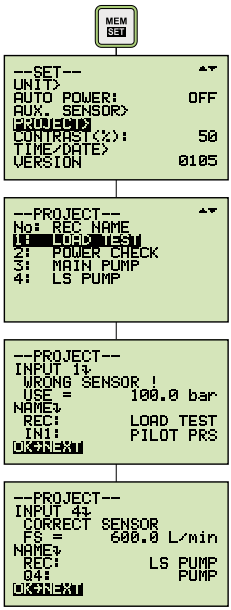
AUTO POWER: OFF, ON

6.3 Impostazione dei sensori esterni (SET AUX. SENSOR)

► Per maggiori informazioni, fare riferimento al capitolo „Collegamento dei sensori esterni“.

6.4 Visualizzazione dei compiti di misura definiti (SET-PROJECT)

Nel software per PC è possibile configurare cinque diverse attività di misura (PROJECT). Per ogni input, sono predefiniti specifici sensori. Queste definizioni possono essere richiamate in SET-PROJECT.



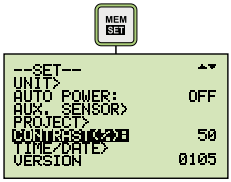
i Input 1
Sensore collegato errato!
Utilizzare il campo di misura da 100 bar.

i Input 4
Sensore collegato corretto
FS = 600 L/min

i Per modificare questa impostazione, è necessario utilizzare il software per PC.

ITALIANO

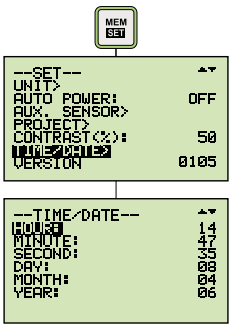
6.5 Impostazione del contrasto (SET-CONTRAST)



Possibilità di selezione:

CONTRAST: 10 . . 100 %

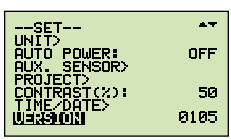
6.6 Impostazione data/ora (SET-TIME/DATE)



Possibilità di selezione:

HOUR: 0 . . 23
MINUTE: 0 . . 59
SECOND: 0 . . 59
DAY: 1 . . 31
MONTH: 1 . . 12
YEAR: 1 . . 99

6.7 Indicazione della versione dello strumento (SET-VERSION)



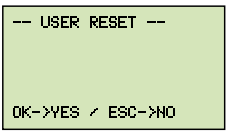
6.8 Impostazione di fabbrica (USER RESET)

Per ripristinare le impostazioni di fabbrica, attenersi alla seguente procedura:

1 Spegnere lo strumento di misura.

2 Premere e tenere premuto il tasto MEM-SET.

3 Premere il tasto ON/OFF.



4 Confermare USER RESET con OK

7. Configurazione della memoria dei valori misurati (MEMORY SET)

Vengono eseguite le seguenti impostazioni:

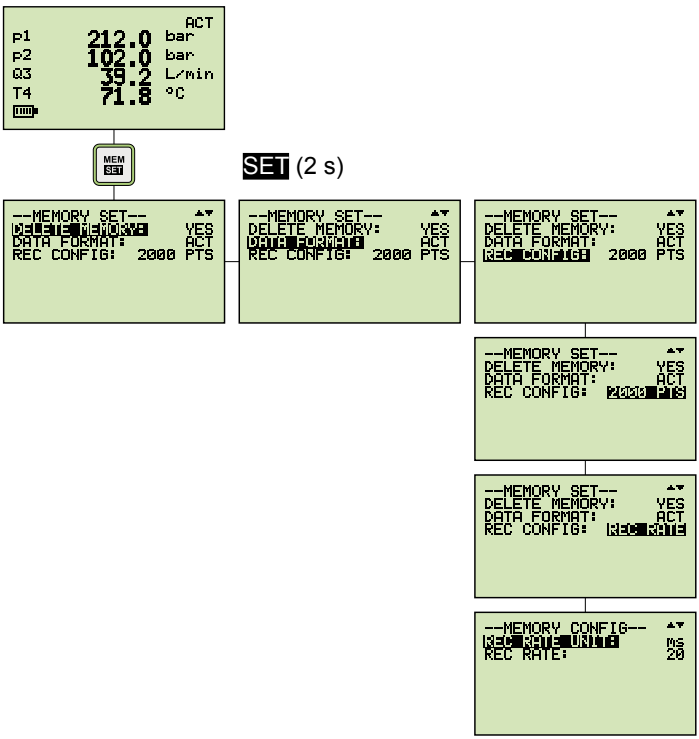
- Cancella memoria valori misurati
- Configurare il formato dei dati dei valori misurati
- Configurare gli intervalli di memoria

Menu	Impostazione/ preselezione	Esempio	Commenti
DELETE MEMORY:	YES, NO	YES	Cancellazione della memoria valori misurati
DATA FORMAT:	ACT MIN-MAX	ACT	Formato dati dei valori misurati **ACT =** Salvataggio dei valori effettivi **MIN-MAX =** Salvataggio dei valori MIN-MAX
REC CONFIG:	REC RATE 2.000 PTS	2.000 PTS	**REC RATE =** Impostazione di un intervallo di memoria individuale **2.000 PTS =** Divisione del tempo di memorizzazione in 2.000 intervalli
REC RATE UNIT:	ms, s, h	ms	Preselezione dell'unità di tempo (intervallo di memoria)
REC RATE:	Numero	20	Impostazione 20 ms

Se vengono definiti i valori ACT, valori misurati importanti potrebbero non essere salvati se si è selezionato un intervallo di memoria troppo grande.

Esempio:

con un intervallo di memoria di 200 millisecondi, non verranno salvati i valori MIN-MAX dinamici. Pertanto si consiglia di impostare MIN-MAX durante le misurazioni dinamiche (picchi di pressione).



ITALIANO

7.1 Cancellazione della memoria dei valori misurati (MEM-DELETE MEMORY)

MEM SET

Premere brevemente.

Possibilità di selezione:

DELETE MEMORY: YES/NO

Confermando con il tasto OK è possibile cancellare la memoria dei valori misurati.

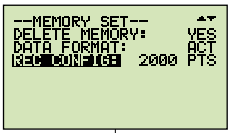
7.2 Impostazione del formato dati (MEM-DATA FORMAT)

Possibilità di selezione:

DATA FORMAT: ACT
MIN/MAX
FAST

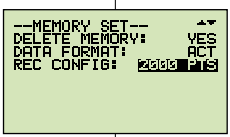
Nell'impostazione FAST su IN1 si misura e si memorizza con un intervallo di memoria di 0,5 ms.

7.3 Impostazione della registrazione del formato (MEM-REC-CONFIG)



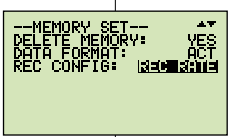
REC CONFIG

Possono essere impostati due formati diversi:



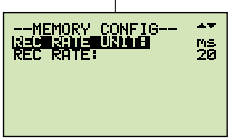
a. Formato 2.000 PTS

Le curve di misura vengono memorizzate con una risoluzione di 2.000 intervalli (punti).



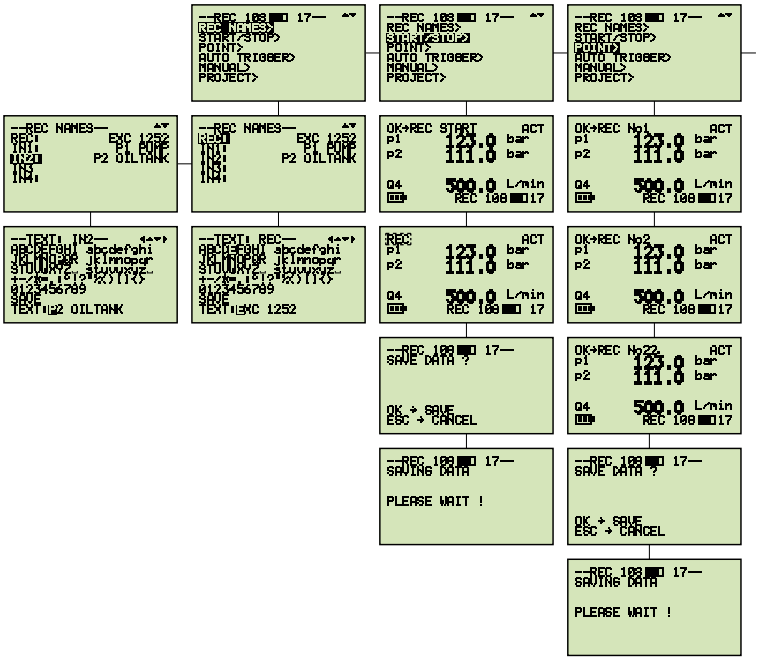
b. Formato REC RATE

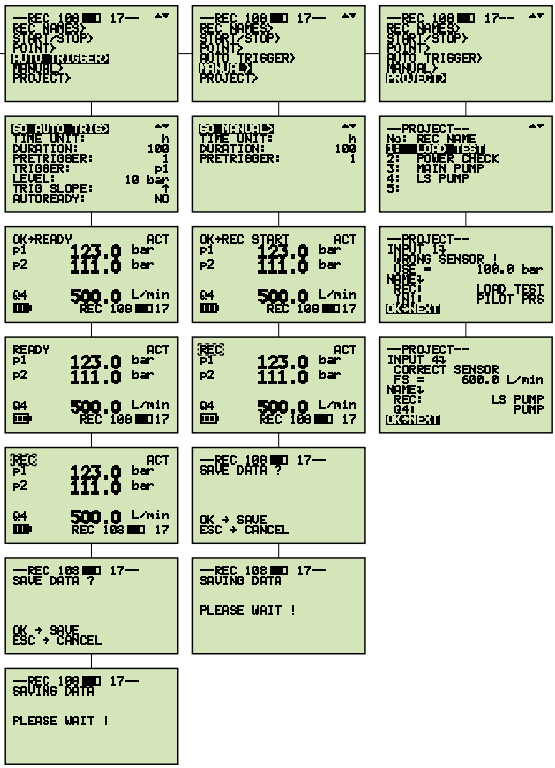
Le curve di misura vengono memorizzate con un intervallo definito.



Esempio: 20 ms

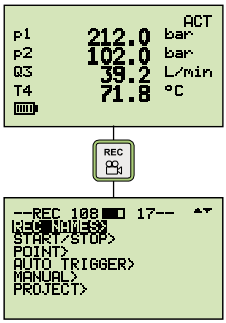
8. II menu REC


--REC 100 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--REC NAMES--
EXC 1252
P2 OILTANK
--TEXT: IN2--
--TEXT: REC--
OK→REC START
ACT
p1
p2
127.0 bar
111.0 bar
Q4
500.0 L/min
REC 100 17
OK→REC No1
OK→REC No2
OK→REC No22
--REC 100 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 100 17--
SAVING DATA
PLEASE WAIT !


REC 100 17
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
MANUAL: OK
PROJECT--
No: REC NAME
01: DOC>01.REC
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
OK+READY ACT
OK+REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
READY ACT
REC ACT
INPUT 4%
CORRECT SENSOR
FS = 600.0 L/min
NOMEN.
REC: LS PUMP
Q4: PUMP
OK=NEXT
SAVE DATA ?
OK → SAVE
ESC → CANCEL
SAVING DATA
PLEASE WAIT !

9. Salvataggio dei valori misurati

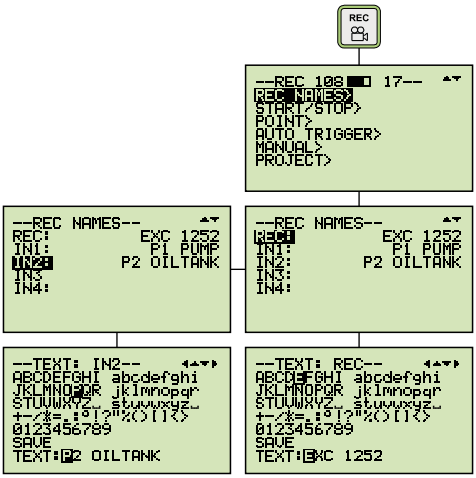
9.1 Impostazioni per il salvataggio dei valori misurati (REC)



Nell'intestazione vengono visualizzati i seguenti parametri:

REC 108	Numero di salvataggi dei valori misurati. Con questa impostazione, nella memoria vengono archiviate 108 misurazioni.
■	Occupazione della memoria
17--	Numero di salvataggi dei valori misurati ancora possibili. Con l'impostazione/configurazione corrente è possibile salvare altre 17 misurazioni.
REC	Durante il salvataggio dei valori misurati, il simbolo REC lampeggia.

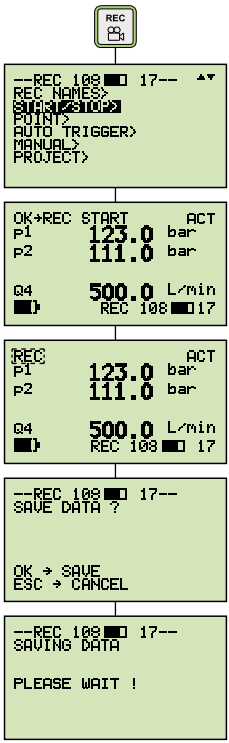
9.2 Impostazione REC NAMES



I nomi delle misurazioni e i canali IN1/IN2/IN3/IN4 vengono definiti nel campo per l'immissione di testi e numeri. Queste impostazioni rimangono memorizzate nello strumento di misura.

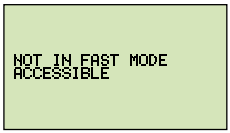
Funzione di memoria START/STOP

L'avvio (tasto START) e l'arresto (tasto STOP/ESC) del salvataggio dei valori misurati vengono gestiti dall'operatore.

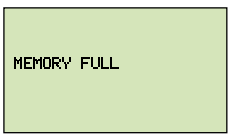


Il formato dati FAST (intervallo di memoria valori ACT in 0,5 ms) non può essere utilizzato nella modalità START/STOP.

Viene visualizzato il seguente messaggio:

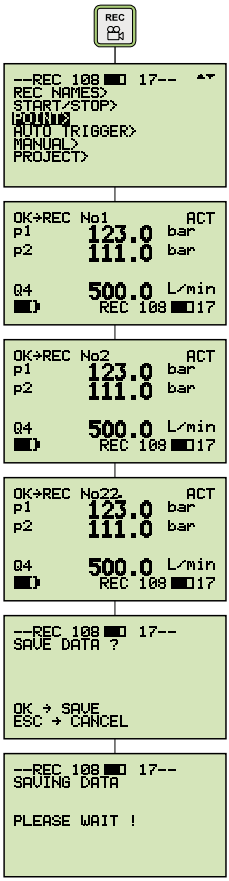


Se nella memoria non vi è spazio sufficiente, viene visualizzato il seguente messaggio:



Funzione di memoria POINT

I punti misurati che rappresentano uno specifico processo della macchina (ad esempio sollevamento, abbassamento, funzionamento a pieno carico, funzionamento a vuoto, ecc.), vengono memorizzati in una curva „punto a punto“. In questo esempio, sono collegati i canali p1, p2 e Q4.



Viene salvato il primo record di dati, ad esempio p1, p2 e Q4

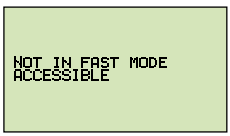
Viene salvato il secondo record di dati, ad esempio p1, p2 e Q4

Viene salvato il terzo record di dati, ad esempio p1, p2 e Q4

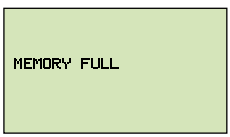
Il tasto OK consente di salvare i record di dati. Con il tasto STOP/ESC è possibile terminare il salvataggio dei valori misurati e scrivere tutti i record di dati nella memoria dei valori misurati.

Il formato dati FAST (intervallo di memoria valori ACT in 0,5 ms) non può essere utilizzato nella modalità START/STOP.

Viene visualizzato il seguente messaggio:



Se nella memoria non vi è spazio sufficiente, viene visualizzato il seguente messaggio:



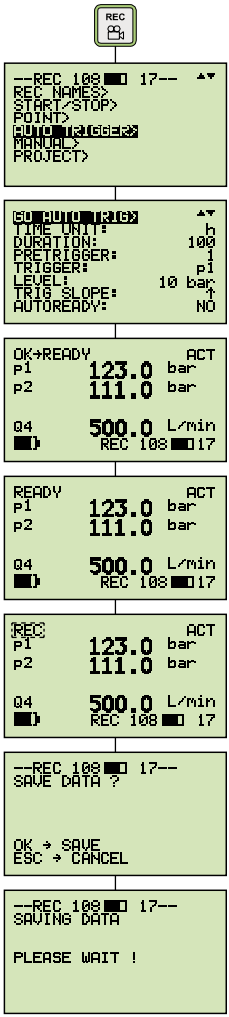
Funzione di memoria AUTO TRIGGER

La funzione Auto Trigger descrive un salvataggio dei valori misurati che avviene a seguito di uno specifico segnale di avvio (ad esempio pressione sul canale 2 → 125 bar). Dopo di che viene avviato un salvataggio automatico dei valori misurati che termina allo scadere del tempo preimpostato.

Durante il salvataggio dei valori misurati, vengono misurate le funzioni dipendenti dal tempo (ad esempio procedure di accensione o cicli di produzione).

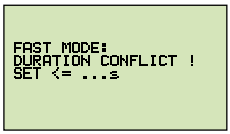
Devono essere impostati i seguenti parametri:

Menu	Impostazione/ preselezione	Valori	Commenti
TIME UNIT>	sec, hrs	h	Preselezione dell'unità di tempo (Trigger/PreTrigger)
DURATION>	Numero	100	Immissione del tempo di memorizzazione
PRE TRIGGER>	Numero	1	Immissione del tempo di PreTrigger (tempo che precede il segnale di trigger)
TRIGGER>	IN	p1	Canale di misura del punto di avvio
LEVEL>	Numero	125 bar	Valore del punto di avvio
TRIG SLOPE>	▲ ▼	▲	Fianco ascendente o discendente
AUTO READY>	YES, NO	YES	Ripetizione automatica del salvataggio dei valori misurati


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
AUTO TRIGG
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
OK→READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

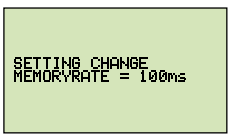
Se si creano conflitti tra il tempo di memorizzazione e gli intervalli di memoria impostati, vengono visualizzati i seguenti messaggi:

1. FAST MODE



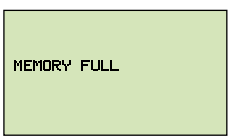
Configurazione di un intervallo di memoria più lungo

2. REC RATE



Configurazione di un intervallo di memoria più lungo

Se nella memoria non vi è spazio sufficiente, viene visualizzato il seguente messaggio:



Cancellare la memoria dei valori misurati o trasferirla sul PC.

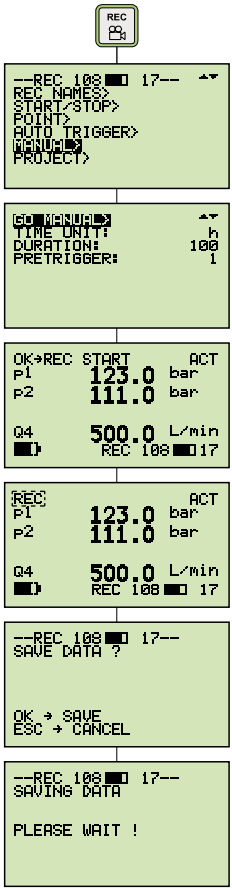
Funzione di memoria MANUAL

La funzione Trigger manuale descrive il salvataggio dei valori misurati che viene eseguito mediante un segnale di avvio manuale ad opera dell'utente. Una volta scaduto il tempo di misurazione predefinito, è possibile completare automaticamente il salvataggio dei valori misurati.

In questo modo è possibile avviare dei salvataggi dei valori misurati temporizzati.

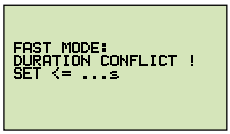
Devono essere impostati i seguenti parametri:

Menu	**Impostazione/ preselezione**	**Esempio**	**Commenti**
TIME UNIT>	sec, hrs	h	Preselezione dell'unità di tempo (Trigger/Pre-Trigger)
DURATION>	Numero	100	Immissione del tempo di memorizzazione
PRE TRIGGER>	Numero	1	Immissione del tempo di PreTrigger (tempo che precede il segnale di trigger)
TRIGGER>	IN	p1	Canale di misura del punto di avvio


REC
--REC 108 17--
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
GO MANUAL>
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
OK→REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

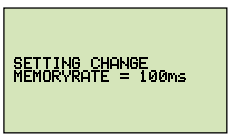
Se si creano conflitti tra il tempo di memorizzazione e gli intervalli di memoria impostati, vengono visualizzati i seguenti messaggi:

1. FAST MODE



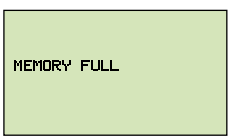
Configurazione di un intervallo di memoria più lungo

2. REC RATE



Configurazione di un intervallo di memoria più lungo

Se nella memoria non vi è spazio sufficiente, viene visualizzato il seguente messaggio:



Cancellare la memoria dei valori misurati o trasferirla sul PC.

Salvataggio dei valori misurati con preimpostazione PROJECT

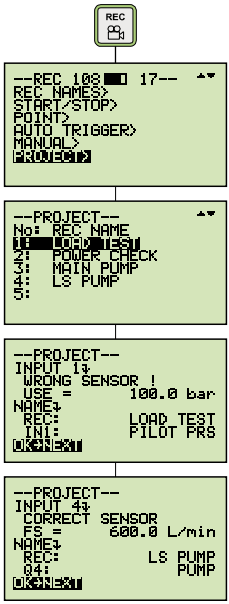
In questa impostazione vengono eseguiti i valori di misura con una determinata configurazione dei sensori. Questa configurazione è stata effettuata dall'operatore con il software per PC. In questo modo si evitano messaggi di errore ed errori di impostazione.

La preimpostazione dei parametri viene modificata nel software per PC oppure trasferita allo strumento di misura.

Possono essere impostati i seguenti parametri:

Menu	**Impostazione/ preselezione**		**Commenti**
REC NAME>	No: 1 . . 5	Load Test	Sono possibili al massimo 5 preimpostazioni (test).
INPUT>	PILOT PRS		Per ogni canale vi sono dei sensori predefiniti.
WRONG SENSOR !	USE	150 bar	Indicazione del sensore errato. A questo canale è necessario collegare un sensore pneumatico con una FS (FullScale) adeguata.
CORRECT SENSOR!	FS	600 L/min	Indicazione del sensore corretto. Può essere collegato il canale successivo.

Una volta collegati tutti i sensori, è possibile selezionare ed eseguire automaticamente il tipo di salvataggio dei valori misurati (START/STOP, POINT, AUTO TRIGGER, MANUAL).


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
INI: PILOT PRS
OK>NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK>NEXT

10. Impostazione e azionamento sul PC

10.1 Collegamento al PC

Strumento di misura, PC e cavo USB

1 Collegare lo strumento di misura al PC (cavo USB)

2 Avviare il software per PC.

Viene visualizzata la seguente schermata:

Dopo la conferma, lo strumento di misura viene inizializzato automaticamente e collegato al PC.

10.2 Azionamento/configurazione del PC

Tutte le altre operazioni ed impostazioni vengono descritte nel dettaglio nel software:

- Misurazione online
- Lettura della memoria dei valori misurati
- Definizione di PROJECT
- Gestione e analisi delle curve misurate

11. Accessori

Gruppo di alimentazione 110/240 VAC EUR/US/UK/AUS	SCSN-450
Cavo per autoveicoli 12/24 VDC	SCK-318-05-21
Cavo di collegamento 3 m 5 m Prolunga (5 m)	 SCK-102-03-02 SCK-102-05-02 SCK-102-05-12
Sensori pneumatici -1. . 15 bar 0. . 60/150/400/600/1.000 bar	 SCPT-015-02-02 SCPT-xxx-02-02
Sensori di portata -60. . +60 L/min -150. . 150 L/min	 SCQ-060-0-02 SCQ-150-0-02
Turbine di misura 15/060/150/300/600/750 L/min	 SCFT-xxx-02-02
Turbina di misura con valvola di carico 150 L/min 300/600/750 L/min	 SCFT-150-DRV SCLV-PTQ-xxx
Contatore di portata 15/060/150/300 L/min	 SCVF-xxx-00-02
Sensori termici (125 °C) Sensore avvitabile (M10) Sensore manuale	 SCT-150-04-02 SCT-150-0-02
Contatore numero di giri (10.000 RPM)	 SCRPM-220
Valigetta con inserto per SCFT-150-DRV Valigetta in alluminio SCLV-PTQ-300 SCLV-PTQ-600/750	 SCC-560 SCC-750 SCC-PTQ-300 SCC-PTQ-600

12. Dati tecnici

Ingresso	Riconoscimento sensori (p/T/Q/n) Collegamento dei sensori esterni Connettore a 5 pin push-pull Risoluzione 12 bit + segno = 4.096 passi
Intervallo di campionamento	1 ms 0,25 ms FAST MODE (IN1)
Indicatore	LCD 128 x 64 Pixel, superficie 72 x 40 mm Illuminazione Dimensioni numeri 6 mm
Immissione	Tastiera
Interfaccia	USB 2.0 Online Speed 20 ms ACT-MIN-MAX
Funzioni di visualizzazione	Divisione; Addizione; Potenza; Volume ACT; MIN; MAX; FS; TEMP
Memoria dei valori misurati	Memoria dei valori misurati: 1.000.000 punti Memoria delle curve: 250.000 punti Formato dati: ACT MIN-MAX FAST (0,5 ms) IN1 Configurazione memoria: Intervallo (ad es. 5 ms) Punti per canale (2.000)
Condizioni ambientali	Temperatura ambiente: 0 . . 50 °C Temperatura di conservazione: -25 °C . . 60 °C Sensore termico: 0,02 %/°C Umidità relativa: <80 % Grado di protezione: EN 60529 IP 54 (spruzzi d'acqua/olio) Prova di caduta IEC 60068-2-32
CE	DIN/EN 61000-6-2 DIN/EN 61000-6-3

Tensione di alimentazione (esterna)	11 . . 30 VDC Gruppo di alimentazione 110/240 VAC - 15 VDC Cavo per autoveicoli (12/24 VDC)
Batteria	NiMH Tempo di carica 180 minuti Durata 8 ore
Alloggiamento	Poliammide 235 x 106 x 53 mm Peso 530 g
Software PC SensoWin	Leggere/rappresentare i dati misurati e analizzarli sul PC Leggere/modificare le impostazioni dell'apparecchio Caricare le impostazioni dell'apparecchio dalla libreria allo strumento di misura

13. Descrizione delle funzioni di memoria

Configurazione della memoria dei valori misurati		
DATA FORMAT	ACT	All'interno dell'intervallo di memoria (ad esempio 50 ms), nella memoria dei valori misurati viene di volta in volta scritto solo il valore misurato corrente (ACT).
	MIN-MAX	All'interno dell'intervallo di memoria (ad esempio 50 ms), nella memoria dei valori misurati viene di volta in volta scritto solo un valore MIN e un valore MAX.
REC CONFIG	2.000 PTS	Il tempo di memorizzazione selezionato viene automaticamente suddiviso in un numero fisso di intervalli di memoria per canale. Esempio: Tempo di memorizzazione 10 min = 600 s Lunghezza dell'intervallo di memoria = 600 s ÷ 2.000 = 300 ms
	REC RATE	Definizione di un intervallo di memoria singolo (ad esempio 5 ms). Lo strumento di misura controlla in base alle impostazioni (DATA FORMAT/REC RATE) se il tempo di memorizzazione selezionato deve essere modificato. Esempio: tempo di memorizzazione 100 h/conflitto tempo di memorizzazione
FAST MODE		Solo i valori misurati ACT vengono memorizzati con un intervallo di memoria fisso di 0,5 ms con IN1. Tutti gli altri ingressi (INx) non sono in funzione.

Selezione della funzione di memoria: Sensore pneumatico/ termico SCPT Tempo di memorizzazione 60 sec				
Funzione di memoria	**Impostazione DATA FORMAT**	**Impostazione REC CONFIG**	**Memoria delle curve (Punti)**	**Numero di valori misurati/punti p (bar) T (°C)**
START/ STOP	ACT MIN-MAX	–	120.000	p (bar) = 15.000 T (°C) = 15.000
AUTO/ MANUAL TRIGGER	ACT MIN-MAX	2.000 PTS	250.000	p (bar) = 2.000 T (°C) = 60
		REC RATE (5 ms)	250.000	p (bar) = 12.000 T (°C) = 60

Particolarità nella modalità START/STOP:	
START STOP	In questa modalità non sono rilevanti le impostazioni in REC CONFIG. Se viene avviato il salvataggio dei valori misurati, il tempo di memorizzazione non è ancora noto. L'intervallo di memoria viene pertanto ottimizzato dinamicamente durante il salvataggio dei valori misurati e adattato di conseguenza. La memoria delle curve può contenere circa 120.000 valori misurati. Durante il collegamento dei sensori SCPT, i valori di misura relativi a temperatura e pressione vengono salvati con lo stesso intervallo di memoria.

1. Determinazione del numero di intervalli di memoria:			
Canali	**Unità di misura**	**Numero valori misurati**	**Numero di intervalli di memoria**
			120.000 ÷ valori misurati = numero di intervalli di memoria
Esempio ①			
4 (SCPT)	°C	4	
	bar	4	
	Valori misurati	8	120.000 ÷ 8 = 15.000
Esempio ②			
2 (SCPT)	°C	2	
	bar	2	
1 (SCFT)	L/min	1	
1 (SCRPM)	RPM	1	
	Valori misurati	6	120.000 ÷ 6 = 20.000

2. Determinazione della lunghezza dell'intervallo di memoria:			
Tempo	**Canali**	**Numero valori misurati**	**Lunghezza dell'intervallo di memoria**
Esempio ①			
60 s 60.000 ms	4 (SCPT)	8	60.000 ÷ 15.000 = 4 ms
30 s 30.000 ms	4 (SCPT)	8	30.000 ÷ 15.000 = 2 ms
Esempio ②			
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	60.000 ÷ 20.000 = 3 ms
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	40.000 ÷ 20.000 = 2 ms

Particolarità nella modalità AUTO/MANUAL TRIGGER:	
AUTO/MANUAL TRIGGER	In questa modalità sono rilevanti le impostazioni in REC CONFIG. Se viene avviato il salvataggio dei valori misurati, il tempo di memorizzazione è noto. La memoria delle curve può contenere 250.000 valori misurati.
REC CONFIG 2.000 PTS	DURATION ÷ 2.000 = lunghezza dell'intervallo di memoria/canale Durante il collegamento dei sensori SCPT, i valori di misura relativi alla temperatura vengono salvati con un intervallo di memoria di un secondo.
REC CONFIG REC RATE	Il salvataggio dei valori misurati viene eseguito con l'intervallo impostato (REC RATE). Durante il collegamento dei sensori SCPT, i valori di misura relativi alla temperatura vengono salvati con un intervallo di memoria di un secondo.

1. Determinazione della lunghezza dell'intervallo di memoria per REC CONFIG 2000 PTS:				
Tempo	**Canali**	**Unità di misura**	**Numero valori misurati**	**Lunghezza dell'intervallo di memoria**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 2.000	60.000 ÷ 2.000 = 30 ms
Punti misurati salvati			8.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 2.000	30.000 ÷ 2.000 = 15 ms
Punti misurati salvati			8.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 2.000 1 x 2.000 1 x 2.000	60.000 ÷ 2.000 = 30 ms
Punti misurati salvati			8.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 2.000 1 x 2.000 1 x 2.000	40.000 ÷ 2.000 = 20 ms
Punti misurati salvati			8.080	

2. Determinazione del numero di intervalli di memoria per REC CONFIG/REC RATE 5 ms:				
Tempo	**Canali**	**Unità di misura**	**Numero valori misurati**	**Numero di intervalli di memoria**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 12.000	60.000 ÷ 5 = 12.000
Punti misurati salvati			48.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 6.000	30.000 ÷ 5 = 6.000
Punti misurati salvati			24.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 12.000 1 x 12.000 1 x 12.000	60.000 ÷ 5 = 12.000
Punti misurati salvati			48.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 8.000 1 x 8.000 1 x 8.000	40.000 ÷ 5 = 8.000
Punti misurati salvati			32.080	

Prólogo

Historia de las revisiones

Versión	Fecha	Modificación
1.0	12/2006	Primera edición

Dirección de contacto

Parker Hannifin GmbH & Co. KG
Tube Fittings Division Europe
Postfach 12 02 06, D-33652 Bielefeld
Am Metallwerk 9, D-33659 Bielefeld
Teléfono +49 521/40 48-0
Fax +49 521/40 48-42 80
Correo electrónico: Ermeto@parker.com
http://www.parker.com

Contenido

Prólogo **259**
Historia de las revisiones 259

1. Indicaciones de seguridad/Selección del producto **263**
1.1 Empleo reglamentario 263
1.2 Personal especializado 263
1.3 Corrección de la documentación técnica 263
1.4 Aplicaciones de alta presión 263
1.5 Servicio/Reparación 264
1.6 Indicaciones para la eliminación 264

2. Versión del aparato/Volumen de suministro **266**

3. Puesta en funcionamiento **267**
3.1 Carga de los acumuladores/Indicación de estado de las baterías 267
3.2 Cambio de batería 267

4. Teclas y funciones **268**
4.1 Símbolos y manejo de los menús 270

5. Conexión de los sensores/Funciones del display **272**
5.1 Formato de datos (DISP) 273
5.2 Configuración del display (LINE) 274
5.4 Borrar valores MIN/MAX (RESET) 276
5.5 Indicación de valor diferencial 276
5.6 Calibración de valor diferencial (IN1=IN2) 277
5.7 Conexión de sensores de otros fabricantes (SET AUX. SENSOR) 279
5.8 Avisos de error/advertencias 282

6. Ajustes del aparato (SET) **284**
6.1 Ajuste de las unidades (SET-UNIT) 286
6.2 Desconexión automática (SET-AUTO POWER) 286
6.3 Ajuste de sensores de otros fabricantes (SET-AUX. SENSOR) 286
6.4 Indicación de tareas de medición definidas (SET-PROJECT) 287

6.5 Ajuste del contraste (SET-CONTRAST) 288
6.6 Ajuste hora/fecha (SET-TIME/DATE) 288
6.7 Visualización de la versión del aparato (SET-VERSION) 288
6.8 Ajuste de fábrica (USER RESET) 289

7. Configuración de la memoria de valores de medición (MEMORY SET) 290

7.1 Borrar la memoria de valores de medición (MEM-DELETE MEMORY) 292
7.2 Ajuste formato de datos (MEM-DATA FORMAT) 292
7.3 Ajuste formato de registro (MEM-REC-CONFIG) 293

8. El menú REC 294

9. Memorización los valores de medición 296

9.1 Ajustes para la memorización de los valores de medición (REC) 296
9.2 El ajuste REC NAMES 297

10. Ajuste y operación en el PC 310

10.1 Conexión al PC 310
10.2 Operación/configuración desde el PC 311

11. Accesorios 312

12. Datos técnicos 313

13. Descripción de las funciones de memoria 315

1. Indicaciones de seguridad/Selección del producto

1.1 Empleo reglamentario

El aparato ha sido concebido exclusivamente para las aplicaciones descritas en las instrucciones. Un empleo diferente al indicado no está permitido y puede dar lugar a accidentes o a la destrucción del aparato. Un empleo tal tiene como consecuencia la extinción inmediata de la garantía y la nulidad de todos los derechos frente al fabricante.

El empleo del producto seleccionado al margen de las especificaciones o sin tener en cuenta las indicaciones de manejo y de advertencia puede dar lugar a disfunciones graves, como consecuencia de las cuales pueden producirse también daños personales y materiales.

1.2 Personal especializado

Estas instrucciones están dirigidas a profesionales debidamente formados que conocen bien las prescripciones y normas vigentes del campo de aplicación correspondiente.

1.3 Corrección de la documentación técnica

Estas instrucciones de manejo han sido preparadas con gran cuidado y meticulosidad. No asumimos garantía alguna por la corrección y completitud de los datos, figuras y dibujos. Sujeto a modificaciones técnicas.

1.4 Aplicaciones de alta presión

Selección

Al seleccionar elementos de presión no se debe exceder la presión de sobrecarga.

Cuando se excede la presión de sobrecarga es posible (dependiendo de la longitud/frecuencia y altura de la punta de presión) que tenga lugar una deformación mecánica de la célula de presión.

En caso de bolsas de aire, debido al „efecto Diesel“ pueden producirse puntas de presión que exceden con mucho la presión de sobrecarga. La presión nominal del elemento de presión tiene que encontrarse por encima de la presión nominal dentro del sistema que se desea medir.

Montaje
Por favor siga las indicaciones y respete los pares de apriete correctos para los atornillamientos o adaptadores empleados.
Rosca de empalme: ½" BSP = 90 Nm
¼" BSP = 30 Nm

Para los atornillamientos hidráulicos (ERMETO) o para mangueras hidráulicas de Parker Hannifin, observe por favor las presiones máximas indicadas en los catálogos.

1.5 Servicio/Reparación

Para la reparación o la calibración de los dispositivos de medición, por favor póngase en contacto con la delegación de ventas de Parker Hannifin.

1.6 Indicaciones para la eliminación

Reciclaje según WEEE

Con la adquisición de nuestro producto dispone usted de la posibilidad de devolvérselo a Parker Hannifin una vez que haya transcurrido su ciclo de vida.

La WEEE (directiva comunitaria 2002/ 96 CE) regula la recogida y el reciclaje de aparatos eléctricos usados.
En el sector B2B (Business to Business), los fabricantes de aparatos eléctricos están obligados a partir de 13.8.2005 a recoger y a reciclar gratis todos los aparatos vendidos a partir de esa misma fecha. Ya no se permite eliminar los aparatos eléctricos por los cauces „normales“ de eliminación de desechos. Los aparatos eléctricos y electrónicos tienen que reciclarse y eliminarse por separado. Todos los aparatos sujetos a esta directiva están caracterizados con este logotipo:

¿Qué podemos hacer por usted?

Parker Hannifin le ofrece la posibilidad de que nos entregue sin costos su aparato usado. Parker Hannifin reciclará y eliminará el aparato profesionalmente en conformidad con la legislación actual.

¿Qué ha de hacer usted?

Después de que su aparato haya llegado al final de su vida útil, envíeselo por correo (dentro de una caja) a la delegación de ventas de Parker Hannnifin que le asesora; nosotros nos hacemos entonces cargo de todas las medidas de reciclaje y de eliminación. El proceso es para usted libre de costos y de molestias.

¿Alguna pregunta?

En caso de que tuviera alguna pregunta, póngase en contracto con nosotros o visite nuestra página web: www.parker.com.

2. Versión del aparato/Volumen de suministro

El aparato de medición y los sensores hacen posible la medición de todos los parámetros relevantes en un sistema hidráulico.

Parámetros:

- [bar/psi] Presión, ∆p (Load-Sensing-Pumpen)
- [°C/°F] Temperatura
- [L/min/G/min] (U.S) Caudal
- RPM [1/min]

El aparato de medición es fácil de manejar gracias al reconocimiento automático de sensor. No es necesario llevar a cabo más ajustes en el aparato de medición.

Una de las características más importantes del aparato es el „plug & work“. De este modo el aparato está listo inmediatamente para entrar en servicio, con lo que se excluyen mediciones erróneas.

3. Puesta en funcionamiento

El aparato de medición se entrega de fábrica con baterías recargables ya puestas. Antes de la primera puesta en servicio hay que cargar el acumulador como mínimo durante 3 horas. A continuación el aparato está ya listo para entrar en funcionamiento.

3.1 Carga de los acumuladores/Indicación de estado de las baterías

Cuando la capacidad de las baterías es demasiado baja parpadea el símbolo de la batería y el aparato de medición se desconecta automáticamente.

Símbolo de batería

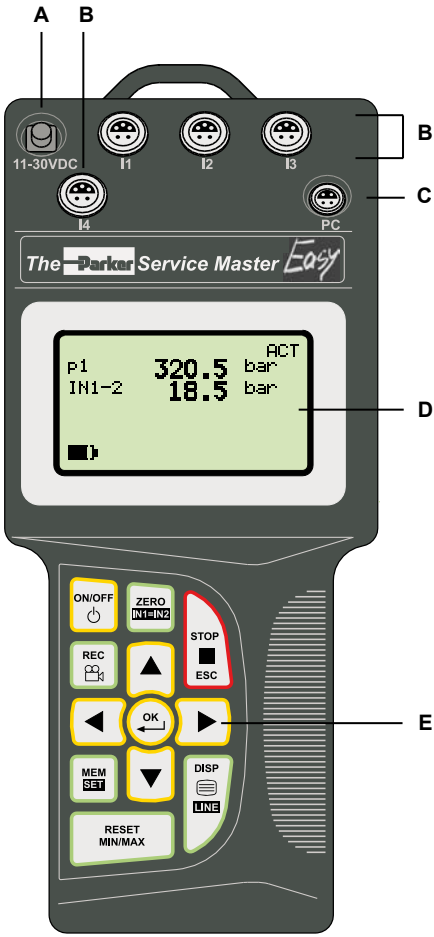
El aparato de medición es operado con el adaptador de red externo o con el adaptador para coche. La batería puede cargarse directamente. El proceso de carga comienza en cuanto que está conectado el adaptador eléctrico.

► En el capítulo „accesorios“ puede encontrar informaciones relativas al adaptador de red externo y al adaptador de coche.

3.2 Cambio de batería

Cambio de batería

4. Teclas y funciones



A **11-30 VDC**
Adaptador de red
110/220 VAC-15 VDC

Adaptador de coche
12/24 VDC

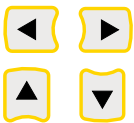
B **I1 . . I4**
Conexión sensores

C **PC (USB)**

D **Indicación (display)**

E **Teclado**

Teclas de función

	ENCENDIDO/APAGADO
	Confirmación Función/Valor
	**Selección** de la función/del valor
	STOP/ESC

Teclas de menú

* Estas teclas de menú tienen una asignación doble:
Selección Nivel de menú 1 = pulsar una vez brevemente
Selección Nivel de menú 2 (con fondo negro) = pulsar una vez durante 2 segundos

	ZERO **IN1 = IN2**	Calibración de punto cero Calibración de valor diferencial	*
	MEM **SET**	Configuración de la memoria Menú principal (ajustes del aparato)	*
	DISP **LINE**	Indicación MIN-MAX/ACT o FS Configuración del display	*
	REC	Memorización de los valores de medición	
	Borrar los valores MIN/MAX		

4.1 Símbolos y manejo de los menús

Cuando detrás de una función de menú aparece el signo „>“ ello significa que hay un submenú al que puede accederse pulsando la tecla OK.
Cuando aparece el signo „:“, con la tecla OK se confirma la entrada correspondiente.

Símbolo de menú	Tecla	Función	Ejemplo
>		Acceso a un submenú/ajuste	UNIT>
:		Confirmación	AUTO POWER: OFF
▲▼		Selección	--SET--

La asignación de las teclas y los símbolos que se encuentran detrás de las funciones de menú son generalmente válidas y ya no se explican explícitamente en lo sucesivo.

Efecto de las teclas de función dentro de los menús

Si una ventana o un menú ofrece varias funciones, éstas son seleccionadas por medio de las teclas de flecha. Las teclas de flecha mueven el cursor en correspondencia con la dirección de la flecha correspondiente.

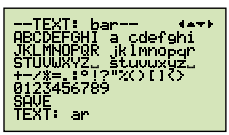
Toda selección de una función o de un submenú hay que confirmarla con OK, al igual que todo cambio o entrada de valores tiene que ser confirmado también con la tecla OK. Con OK se guardan todos los ajustes. Si usted desea abandonar un menú o no guardar la entrada, emplee siempre la tecla STOP/ESC. La asignación y la función de estas tres teclas es siempre la misma, indiferentemente del menú en el que usted se encuentre.

Debido a que las teclas de función son fácilmente comprensibles y a que funcionan siempre de la misma manera, hemos prescindido conscientemente de aducirlas en los ejemplos con objeto de que el contenido de los menús esté siempre en el centro de las explicaciones. Para la reproducción de los ejemplos aducidos es necesario hacer uso de las teclas de función del modo como se ha descrito.

Ejemplo: Ajuste de la unidad (texto) y del rango de medición (números) en sensores de otros fabricantes.

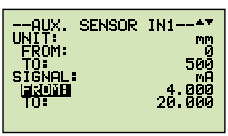
Entrada de texto:

Para el ajuste de las unidades (máximo 15 signos)



Entrada numérica:

Para ajustar el rango de medición y el rango de señal

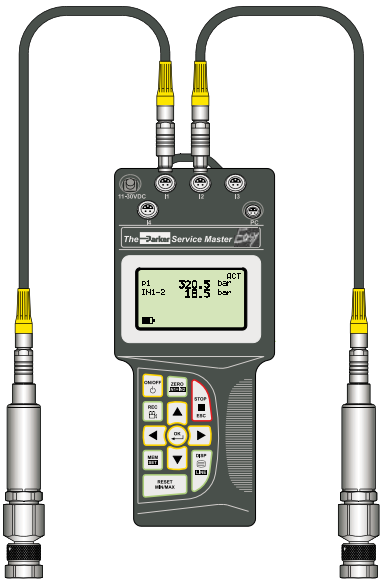


5. Conexión de los sensores/Funciones del display

Con objeto de evitar perturbaciones eléctricas, observe los pasos que se indican a continuación:

1 Conectar el sensor al aparato de medición con el cable de conexión.

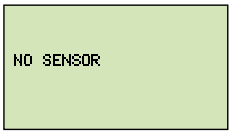
2 Conectar el aparato de medición.



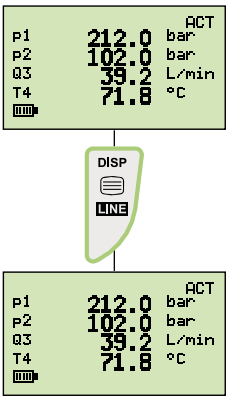
Aparato de medición con dos sensores de presión

- Después de la conexión se indican todos los valores de medición en el display.
- Mediante el reconocimiento automático de sensores, en el display aparece el valor de medición con la unidad correcta.
- No es preciso realizar otros ajustes en el aparato.

- Cuando no hay ningún sensor conectado al aparato aparece el siguiente aviso:



5.1 Formato de datos (DISP)



Pulsar **DISP** (brevemente)

La visualización del display puede cambiarse con la tecla **DISP** (pulsar brevemente).

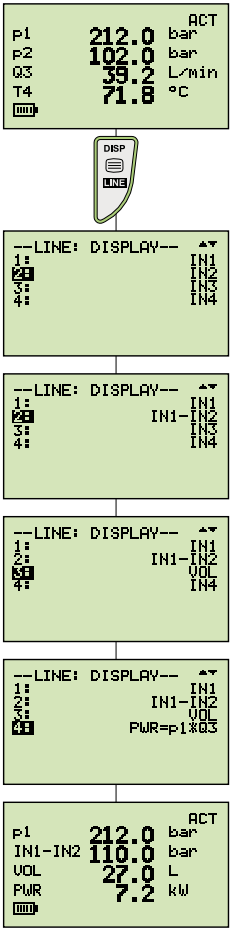
Es posible elegir:

ACT = Valores reales
MIN = Valores mínimos
MAX = Valores máximos (punta de presión)
FS = FullScale (valor final del rango de medición)
TEMP = Indicación de temperatura

La indicación **TEMP** vale sólo para sensores del tipo „SCPT“.

ESPAÑOL

5.2 Configuración del display (LINE)



Pulsar LINE (2 s)

Line:

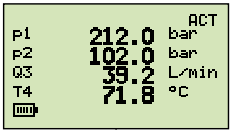
1: no es posible realizar ningún ajuste, no se puede seleccionar

2: Es posible elegir:
Diferencia (IN1 - IN2)
Adición (IN1 + IN2)

3: **Volumen** VOL= Q3 x time

4: Es posible elegir:
Power
PWR1 = p1 x Q3
PWR2 = (p1-p2) x Q3

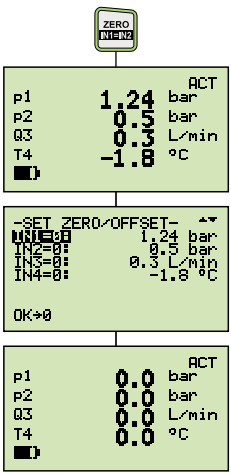
5.3 Calibración de punto cero (ZERO)

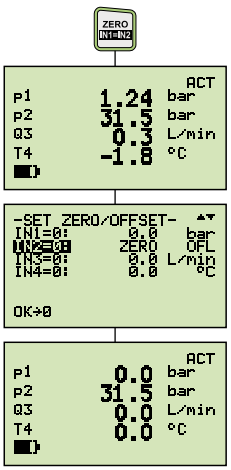


Si los valores de calibración se encuentran dentro de la tolerancia permitida (2 % de FS), los valores se ponen a cero.

Si los valores de calibración se encuentran dentro de la tolerancia permitida (2 % de FS), aparece: ZERO OFL.

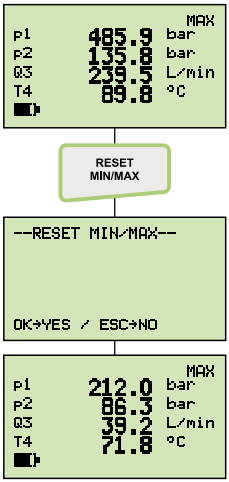
Pulsar (brevemente) **ZERO**





ESPAÑOL

5.4 Borrar valores MIN/MAX (RESET)



Indicación de los valores MAX medidos hasta el momento.

Se borran los valores MIN/MAX.

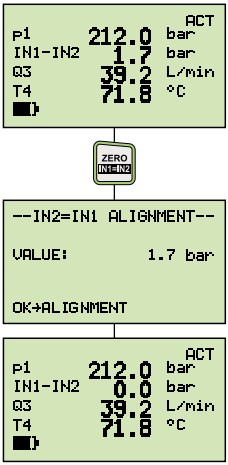
En la indicación MAX aparecen los valores MAX actualizados.

Ejemplo: Caída de presión en el sistema hidráulico

5.5 Indicación de valor diferencial

► Los ajustes IN1 – IN2 se describen en el capítulo „Configuración del display (LINE)“.

5.6 Calibración de valor diferencial (IN1=IN2)



Pulsar (2 s) **IN1=IN2**

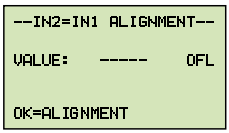
La calibración de valor diferencial hay que llevarla a cabo con la presión de servicio. Monte dos sensores de presión a la misma conexión (adaptador T). La tolerancia de los sensores entre sí es reseteada por la calibración ∆p.

Este ajuste queda guardado y es válido sólo para la presión de servicio correspondiente.

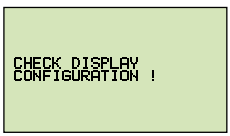
Con respecto a IN1=IN2 son posibles tres avisos de error:

1 Valores de calibración fuera de la tolerancia permitida:

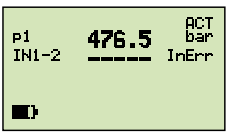
- Con sensores con reconocimiento automático de sensores 5 % del valor final de rango de medición (FS)
- Con sensores de otros fabricantes 10 % del valor final de rango de medición (FS)



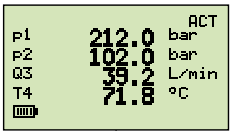
2 IN1 - IN2 sin configurar (DISP-LINE):



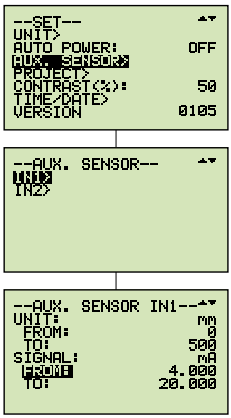
3 Las magnitudes de medición no son iguales (IN1=bar/IN2=L/min)



5.7 Conexión de sensores de otros fabricantes (SET AUX. SENSOR)



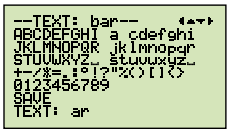
Pulsar **SET** (2 s)



La especificación eléctrica de los sensores de otros fabricantes tiene que ser compatible con el aparato de medición/adaptador. ¡Observe que la asignación de los pins y la tensión de alimentación sean correctas y evite cortocircuitos eléctricos!

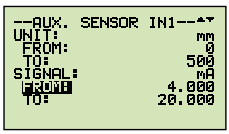
Entrada de texto UNIT/SIGNAL

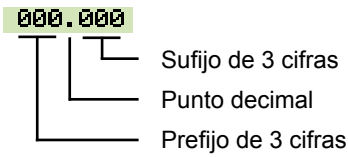
Para el ajuste de las unidades (máximo 15 signos).



Entrada numérica FROM/TO

Para ajustar el rango de medición y el rango de señal:
Prefijo de 3 cifras, punto decimal, sufijo de 3 cifras.

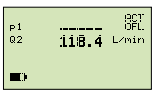
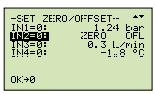
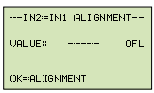
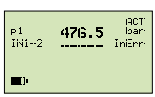


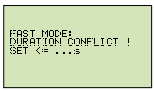
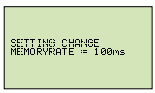


Conexión de sensores de otros fabricantes:

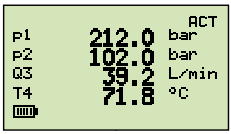
Aparato de medición con adaptador de conexión y sensores para carrera (mm) y fuerza (kN).

5.8 Avisos de error/advertencias

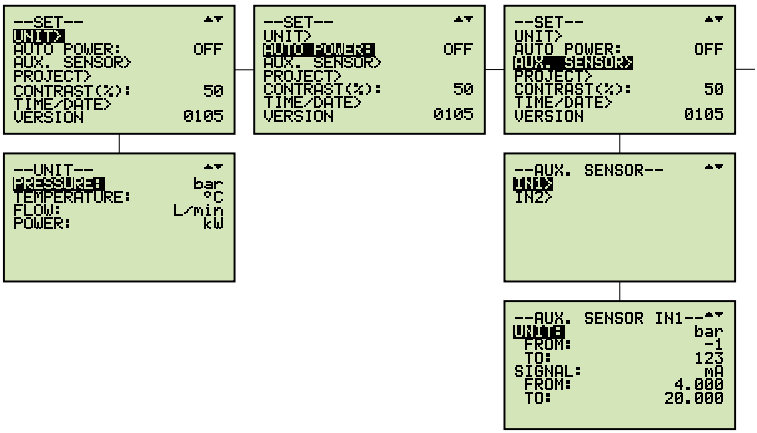
Indicación	Descripción	¿Qué se puede hacer?
	No hay ningún sensor conectado	Desconectar el aparato de medición Conectar los sensores Conectar el aparato de medición
%	Hay conectado un sensor de otro fabricante.	Llevar a cabo los ajustes en el menú SET- AUX.SENSOR
	La detección de sensor está interrumpida. (rotura de cable o input defectuoso).	Enviar a Parker Hannifin el aparato de medición, el sensor y el cable de conexión
	Desbordamiento rango de medición La presión medida se encuentra fuera del rango de medición	Desconectar la presión del sistema Emplear un sensor con un rango de medición mayor
	Overflow ZERO El valor de calibración del punto cero se encuentra fuera de tolerancia	Comprobar sólo sin presión.
	Overflow IN1 = IN2 Calibración de valor diferencial El valor de calibración se encuentra fuera de tolerancia	Comprobar la presión del sistema Emplear sensor con un rango de medición mayor.
	DISP LINE IN1 = IN2 Ajuste erróneo	Configurar IN1-IN2
	Overflow IN1 - IN2: Calibración de valor diferencial Sensor erróneo	Las magnitudes de medición (sensores) tienen que ser iguales IN1 / IN2 = bar IN1 / IN2 = L/min IN1 / IN2 = °C

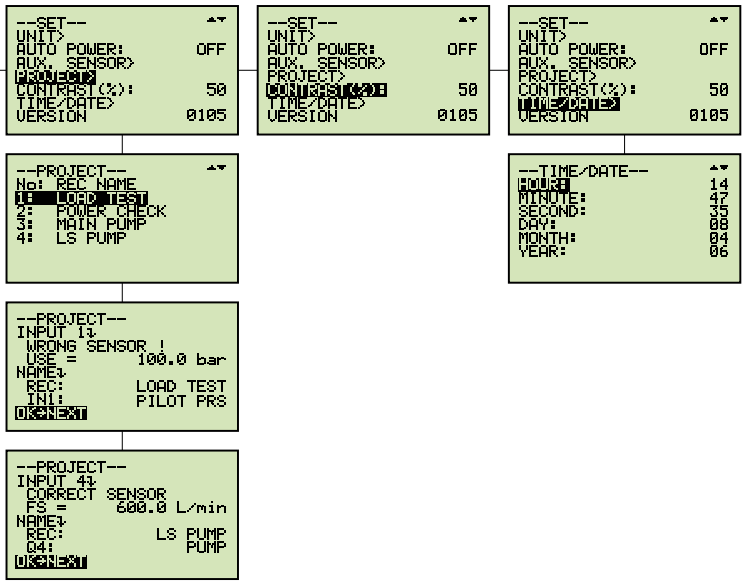
Indicación	Descripción	¿Qué se puede hacer?
	Memoria de valores llena	Descargar al PC los valores de medición Borrar la memoria de valores de medición
	No aplicable en el FAST MODE	Ajuste REC: START-STOP/POINT FAST MODE posible sólo para AUTO TRIGGER MANUAL
	Conflicto tiempo de memorización (DURATION) FAST MODE (0,5 ms)	Ajuste REC AUTO TRIGGER MANUAL Cambiar el tiempo de memorización DURATION
	Conflicto tiempo de memorización (REC RATE)	Ajuste MEM-SET REC CONFIG REC RATE Cambiar el intervalo de memorización REC RATE. Confirmar con OK

6. Ajustes del aparato (SET)

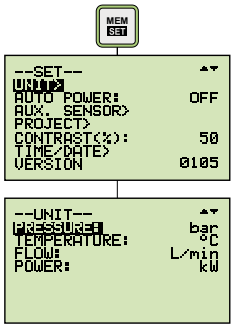


Pulsar **SET** (2 s)




--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--SET--
UNIT>
AUTO POWER: OFF
AUX. SENSOR>
PROJECT>
CONTRAST(%): 50
TIME/DATE>
VERSION 0105
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
--TIME/DATE--
HOUR: 14
MINUTE: 47
SECOND: 35
DAY: 08
MONTH: 04
YEAR: 06
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
IN1: PILOT PRS
OK→NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK→NEXT

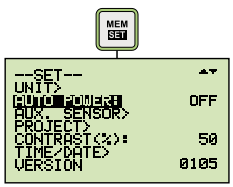
6.1 Ajuste de las unidades (SET-UNIT)



Es posible elegir:

PRESSURE: bar, mbar, psi ,MPa, kPa
TEMPERATURE: °C, °F
FLOW: L/min, G/min (US)
POWER: kW, HP (US)

6.2 Desconexión automática (SET-AUTO POWER)



Es posible elegir:

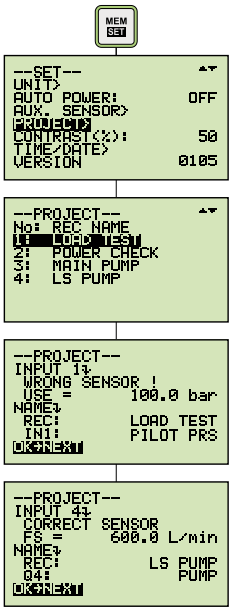
AUTO POWER: OFF, ON

6.3 Ajuste de sensores de otros fabricantes (SET-AUX. SENSOR)

► Puede hallar más información en el capítulo „Conexión de sensores de otros fabricantes“.

6.4 Indicación de tareas de medición definidas (SET-PROJECT)

En el software de PC es posible configurar hasta cinco tareas de medición diferentes (PROJECT). Para cada Input se definen previamente determinados sensores. Estas definiciones pueden consultarse en SET-PROJECT.

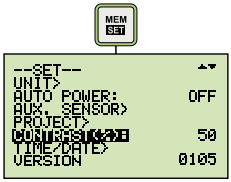


Input 1
¡Conectado un sensor erróneo!
Emplear rango de medición 100 bar.

Input 4
Conectado un sensor correcto
FS = 600 L/min

Este ajuste puede cambiarse sólo empleando el software de PC.

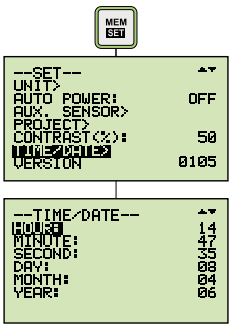
6.5 Ajuste del contraste (SET-CONTRAST)



Es posible elegir:

CONTRAST: 10 . . 100 %

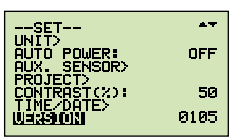
6.6 Ajuste hora/fecha (SET-TIME/DATE)



Es posible elegir:

HOUR:	0 . . 23
MINUTE:	0 . . 59
SECOND:	0 . . 59
DAY:	1 . . 31
MONTH:	1 . . 12
YEAR:	1 . . 99

6.7 Visualización de la versión del aparato (SET-VERSION)



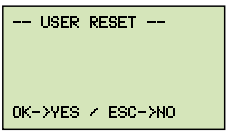
6.8 Ajuste de fábrica (USER RESET)

Para restaurar los ajustes de fábrica del aparato de medición proceda como se indica a continuación:

1 Desconectar el aparato de medición.

2 Pulsar la tecla MEM-SET y mantenerla pulsada.

3 Pulsar la tecla ON/OFF.



4 Confirmar USER RESET con OK

7. Configuración de la memoria de valores de medición (MEMORY SET)

Se llevan a cabo los ajustes siguientes:

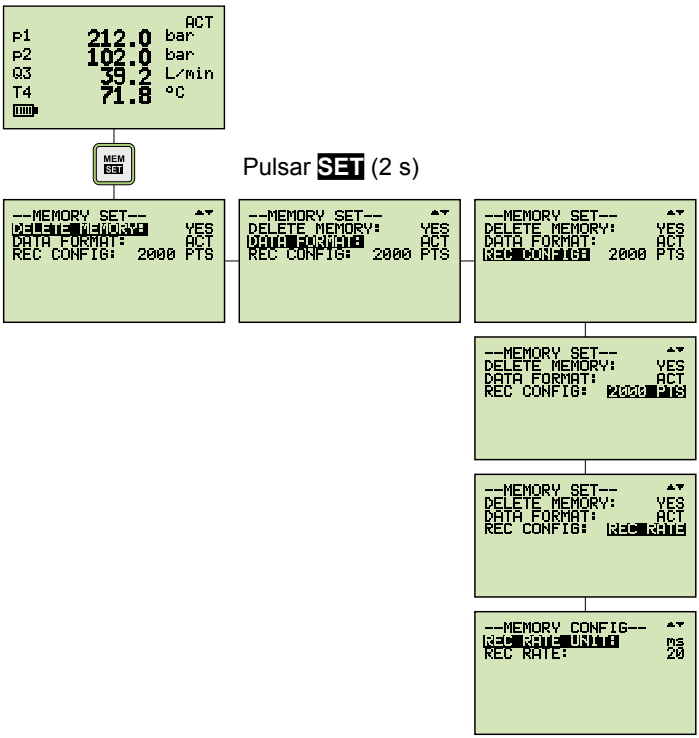
- Borrar la memoria de valores de medición
- Configurar el formato de los datos de los valores de medición
- Configurar los intervalos de memorización

Menú	Ajuste/Preselección	Ejemplo	Observación
DELETE MEMORY:	YES, NO	YES	Borrar la memoria de valores de medición
DATA FORMAT:	ACT MIN-MAX	ACT	Formato de datos de los valores de medición **ACT =** Memorización de los valores actuales **MIN-MAX =** Memorización de los valores MIN-MAX
REC CONFIG:	REC RATE 2.000 PTS	2.000 PTS	**REC RATE =** Ajuste de un intervalo de memorización individual **2.000 PTS =** Distribución del tiempo de memorización en 2.000 intervalos de memorización
REC RATE UNIT:	ms, s, h	ms	Preselección de la unidad de tiempo (intervalo de memorización)
REC RATE:	Zahl	20	Ajuste 20 ms

i Si se definen valores ACT, dado el caso no será posible guardar valores de medición importantes si se elige un intervalo de memorización demasiado grande.

Ejemplo:

Con un intervalo de memorización de 200 milisegundos no se memorizan valores MIN-MAX dinámicos. Por ello, para mediciones dinámicas (puntas de presión) se recomienda el ajuste MIN-MAX.



7.1 Borrar la memoria de valores de medición (MEM-DELETE MEMORY)

MEM SET

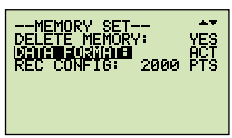
Pulsar (brevemente).

Es posible elegir:

DELETE MEMORY: YES/NO

La memoria de valores de medición se borra confirmando con la tecla OK.

7.2 Ajuste formato de datos (MEM-DATA FORMAT)

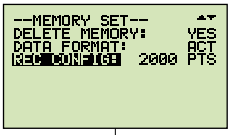


Es posible elegir:

DATA FORMAT: ACT
MIN/MAX
FAST

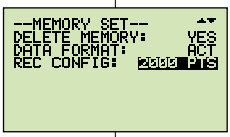
En el ajuste FAST en IN1 se mide y memoriza con un intervalo de memorización de 0,5 ms.

7.3 Ajuste formato de registro (MEM-REC-CONFIG)



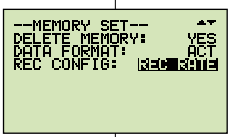
REC CONFIG

Es posible ajustar dos formatos diferentes:



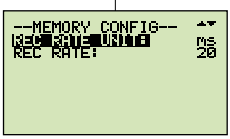
a. Formato 2.000 PTS

Las curvas de medición se guardan con una resolución de 2.000 intervalos (puntos).



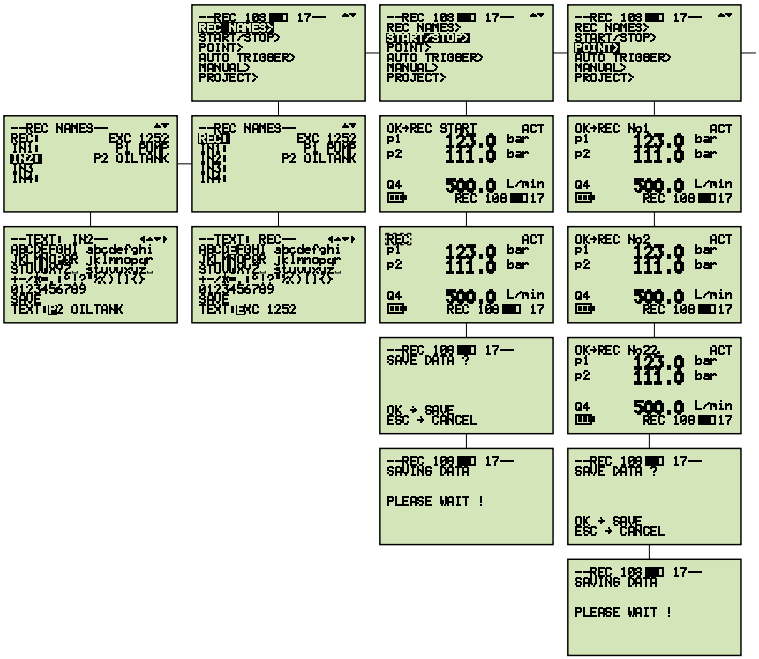
b. Formato REC RATE

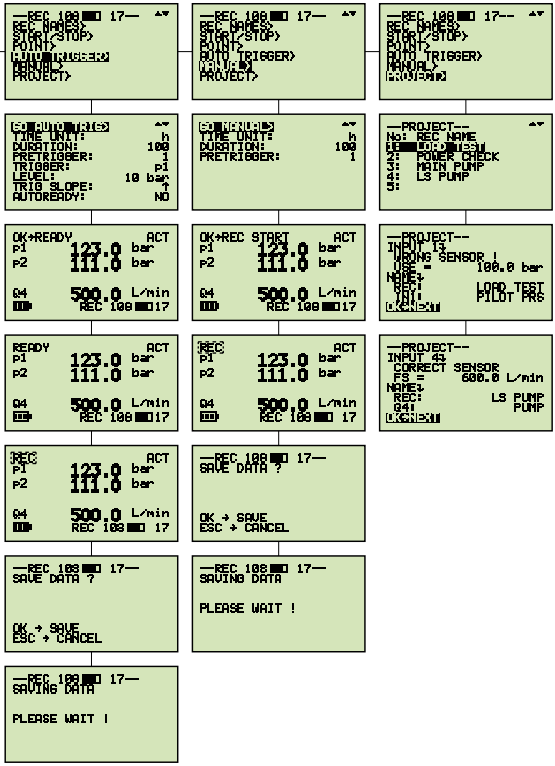
Las curvas de medición se guardan con un intervalo definido.



Ejemplo: 20 ms

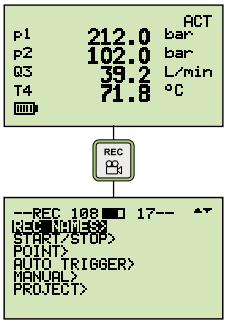
8. El menú REC


--REC 100 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--REC NAMES--
REC1: EXC 1252
IN1: P1 PUMP
IN2: P2 OILTANK
IN3:
IN4:
--TEXT: IN2--
ABCDEFGHIJ abcdefghi
JKLMNOPQR jklmnopqr
STUVWXYZ stuvwxyz
+-/*= !&?@#%^$:;"'()[]{}<>
0123456789
SAVE
TEXT: P2 OILTANK
OK→REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
--REC 100 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 100 17--
SAVING DATA
PLEASE WAIT !
OK→REC No1 ACT
OK→REC No2 ACT
OK→REC No22 ACT


REC 100 17
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
TYPE UNIT: h
DURATION: 100
PRETRIGGER: 1
MANUAL
No: REC NAME
1: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
OK+READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
OK+REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
INPUT 1$
WRONG SENSOR !
USE = 100.0 bar
NOW:
REC!
Q4!
OK+ESC
LOAD TEST
PILOT PRS
READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 100 17
INPUT 4$
CORRECT SENSOR
FS = 600.0 L/min
NOW:
REC!
Q4!
LS PUMP
PUMP
SAVE DATA ?
OK → SAVE
ESC → CANCEL
SAVING DATA
PLEASE WAIT !

9. Memorización los valores de medición

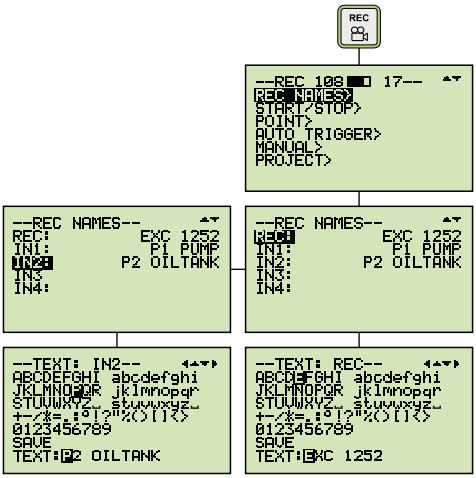
9.1 Ajustes para la memorización de los valores de medición (REC)



En el encabezamiento se indican los parámetros siguientes:

REC 108	Número de memorizaciones de valores de medición. En este ajuste hay registradas 108 mediciones en la memoria.
	Ocupación de la memoria
17--	Número de memorizaciones aún posibles de valores de medición. Con los ajustes/configuración actuales es posible guardar aún 17 mediciones más.
	Durante la memorización de los valores de medición parpadea el símbolo REC.

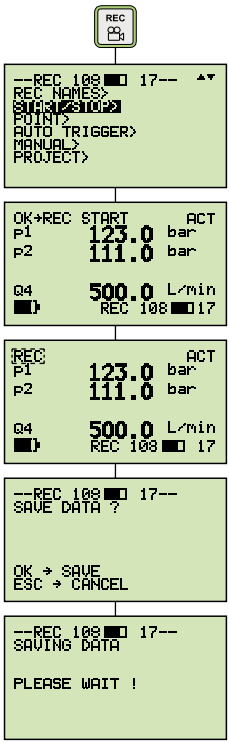
9.2 El ajuste REC NAMES



Las denominaciones (nombres) de las mediciones y de los canales IN1/ IN2/IN3/IN4 se definen en la entrada de texto/numérica. Estos ajustes quedan guardados en el aparato de medición.

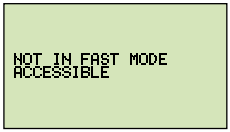
Función de memoria START/STOP

El usuario controla el inicio (tecla START) y el fin (tecla STOP/ESC) del registro de valores de medición.

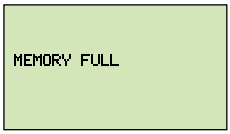


El formato de datos FAST (intervalo de memorización ACT valores en 0,5 ms) no puede emplearse en el modo START/STOP.

Entonces aparece el siguiente aviso:

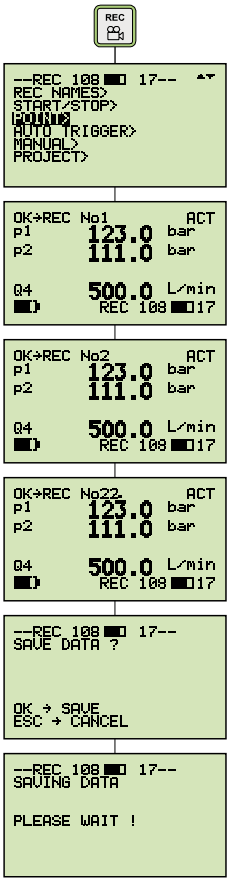


Cuando no hay espacio suficiente en la memoria de valores de medición aparece el aviso siguiente:



Función de memoria POINT

Los puntos de medición que representan una cierta secuencia de la máquina (p.ej. elevar, bajar, funcionamiento de carga, marcha en vacío etc.), se guardan en una curva „punto a punto“. En el ejemplo están conectados los canales p1, p2 y Q4.



Se guarda el primer registro de datos, p.ej. p1, p2 y Q4

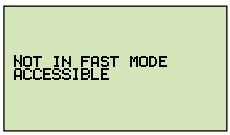
Se guarda el segundo registro de datos, p.ej. p1, p2 y Q4

Se guarda el tercer registro de datos, p.ej. p1, p2 y Q4

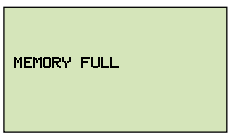
Con la tecla OK se guardan los registros de datos. Con la tecla STOP/ESC se finaliza la memorización de los valores de medición y se escriben en la memoria todos los registros de datos.

El formato de datos FAST (intervalo de memorización ACT valores en 0,5 ms) no puede emplearse en el modo START/STOP.

Entonces aparece el siguiente aviso:



Cuando no hay espacio suficiente en la memoria de valores de medición aparece el aviso siguiente:



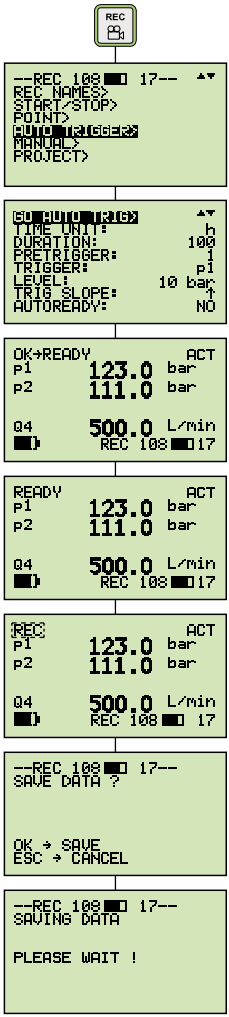
Función de memoria AUTO TRIGGER

La función Auto Trigger describe una memorización de valores de medición disparada por una determinada señal de inicio (p.ej. presión en canal 2 → 125 bar). Entonces se da inicio a una memorización de valores de medición que tiene lugar automáticamente y que finaliza una vez concluido el tiempo de medición preajustado.

Con la memorización de valores de medición se miden funciones independientes del tiempo (p.ej. procesos de conexión o ciclos de fabricación).

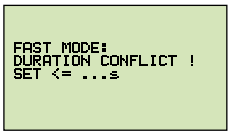
Hay que ajustar los parámetros siguientes:

Menú	Ajuste/ preselección	Valores	Observación
TIME UNIT>	sec, hrs	h	Preselección de la unidad de tiempo (Trigger/ PreTrigger)
DURATION>	Número	100	Entrada del tiempo de memorización
PRE TRIGGER>	Número	1	Entrada del tiempo Pre-Trigger (tiempo antes de la señal de Trigger)
TRIGGER>	IN	p1	Canal de medición del punto de inicio
LEVEL>	Número	125 bar	Valor del punto de inicio
TRIG SLOPE>	▲ ▼	▲	Flanco ascendente o descendente
AUTO READY>	YES, NO	YES	Repetición automática de la memorización de valores de medición


REC
--REC 108 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
AUTO TRIGG
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
TRIGGER: p1
LEVEL: 10 bar
TRIG SLOPE: ↑
AUTOREADY: NO
OK→READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
READY ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

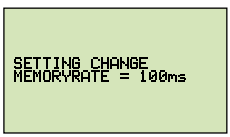
Cuando se producen conflictos entre el tiempo de memorización y los intervalos de memorización ajustados aparecen los avisos siguientes:

1. FAST MODE



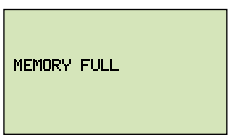
Configuración de un intervalo de memorización más prolongado

2. REC RATE



Configuración de un intervalo de memorización más prolongado

Cuando no hay espacio suficiente en la memoria de valores de medición aparece el aviso siguiente:



Borrar memoria o transferir datos al PC.

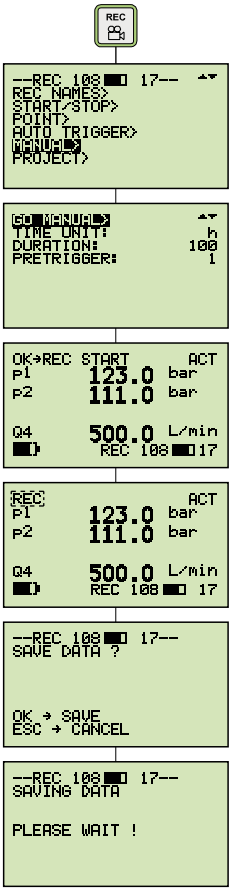
Función de memoria MANUAL

La función Trigger manual describe una memorización de valores de medición disparada por una señal de inicio manual por parte del usuario. Después de un tiempo de medición preajustado, finaliza automáticamente la memorización de valores de medición.

De este modo de inician manualmente memorizaciones de valores de medición dependientes del tiempo.

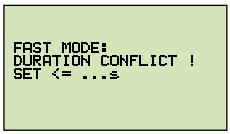
Hay que ajustar los parámetros siguientes:

Menú	Ajuste/ preselección	Ejemplo	Observación
TIME UNIT>	sec, hrs	h	Preselección de la unidad de tiempo (Trigger/ PreTrigger)
DURATION>	Número	100	Entrada del tiempo de memorización
PRE TRIGGER>	Número	1	Entrada del tiempo Pre-Trigger (tiempo antes de la señal de Trigger)
TRIGGER>	IN	p1	Canal de medición del punto de inicio


REC
--REC 108 17--
REC NAME>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
Go MANUAL>
TIME UNIT: h
DURATION: 100
PRETRIGGER: 1
OK→REC START ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
REC ACT
p1 123.0 bar
p2 111.0 bar
Q4 500.0 L/min
REC 108 17
--REC 108 17--
SAVE DATA ?
OK → SAVE
ESC → CANCEL
--REC 108 17--
SAVING DATA
PLEASE WAIT !

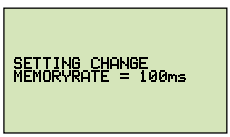
Cuando se producen conflictos entre el tiempo de memorización y los intervalos de memorización ajustados aparecen los avisos siguientes:

1. FAST MODE



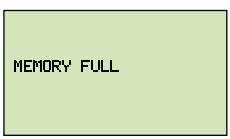
Configuración de un intervalo de memorización más prolongado

2. REC RATE



Configuración de un intervalo de memorización más prolongado

Cuando no hay espacio suficiente en la memoria de valores de medición aparece el aviso siguiente:



Borrar memoria o transferir datos al PC.

Memorización de valores de medición con ajuste previo PROJECT

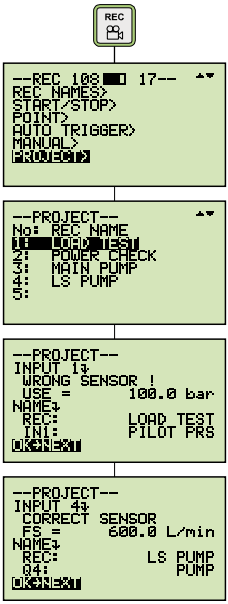
En este ajuste se llevan a cabo mediciones con unna cierta configuración de sensores. Esta configuración viene predeterminada por el usuario con el software del PC. De este modo se evitan mediciones y ajustes erróneos.

El ajuste previo de los parámetros se modifica o transmite al aparato de medición en el software de PC.

Es posible ajustar los parámetros siguientes:

Menú	**Ajuste/ preselección**		**Observación**
REC NAME>	No: 1 . . 5	Load Test	Puede elegirse entre un máximo de 5 ajustes previos (tests).
INPUT>	PILOT PRS		Para cada canal están predeterminados sensores definidos.
WRONG SENSOR !	USE	150 bar	Indicación de sensor erróneo. A este canal hay que conectar un sensor de presión con FS (FullScale) correspondiente.
CORRECT SENSOR!	FS	600 L/min	Indicación de sensor correcto. Es posible conectar el próximo canal.

Cuando todos los sensores están conectados se selecciona y se ejecuta automáticamente el tipo correspondiente de memorización de valores de medición (START/STOP, POINT, AUTO TRIGGER, MANUAL).


REC
--REC 100 17--
REC NAMES>
START/STOP>
POINT>
AUTO TRIGGER>
MANUAL>
PROJECT>
--PROJECT--
No: REC NAME
1: LOAD TEST
2: POWER CHECK
3: MAIN PUMP
4: LS PUMP
5:
--PROJECT--
INPUT 1↓
WRONG SENSOR !
USE = 100.0 bar
NAME↓
REC: LOAD TEST
INI: PILOT PRS
OK>NEXT
--PROJECT--
INPUT 4↓
CORRECT SENSOR
FS = 600.0 L/min
NAME↓
REC: LS PUMP
04: PUMP
OK>NEXT

ESPAÑOL

10. Ajuste y operación en el PC

10.1 Conexión al PC

Aparato de medición, PC y cable USB

1 Conectar el aparato de medición al PC (cable USB)

2 Iniciar el software del PC.

Aparece la siguiente pantalla:

Después de confirmar, el aparato de medición se inicializa automáticamente y está conectado con el PC.

10.2 Operación/configuración desde el PC

Todos los pasos y ajustes restantes se describen extensamente en el software del PC:

- Medición online
- Lectura de la memoria de valores de medición
- Definición de PROJECT
- Administración y análisis de curvas medidas

11. Accesorios

Adaptador de red 110/240 VAC EUR/US/UK/AUS	SCSN-450
Cable para coche 12/24 VDC	SCK-318-05-21
Cable de conexión 3 m 5 m Prolongación (5 m)	 SCK-102-03-02 SCK-102-05-02 SCK-102-05-12
Sensores de presión -1. . 15 bar 0. . 60/150/400/600/1.000 bar	 SCPT-015-02-02 SCPT-xxx-02-02
Sensores de caudal -60. . +60 L/min -150. . 150 L/min	 SCQ-060-0-02 SCQ-150-0-02
Turbinas de medición 15/060/150/300/600/750 L/min	 SCFT-xxx-02-02
Turbina de medición con válvula de carga 150 L/min 300/600/750 L/min	 SCFT-150-DRV SCLV-PTQ-xxx
Contador de volumen 15/060/150/300 L/min	 SCVF-xxx-00-02
Sensores de temperatura (125 °C) Sensor con rosca (M10) Sensor manual	 SCT-150-04-02 SCT-150-0-02
Contador de revoluciones (10.000 RPM)	 SCRPM-220
Maleta con elemento interior para SCFT-150-DRV Maleta de aluminio SCLV-PTQ-300 SCLV-PTQ-600/750	 SCC-560 SCC-750 SCC-PTQ-300 SCC-PTQ-600

12. Datos técnicos

Entrada	Detección de sensores (p/T/Q/n) Conexión de sensores de otros fabricantes Conexion de enchufe 5 pins Push-pull Resolución 12 bit + signo = 4.096 pasos	
Intervalo de exploración	1 ms 0,25 ms FAST MODE (IN1)	
Indicación	LCD 128 x 64 píxeles, superficie 72 x 40 mm Iluminación Altura de cifras 6 mm	
Entrada	Teclado de membranas	
Interface	USB 2.0 Online Speed 20 ms ACT-MIN-MAX	
Funciones de indicación	Diferencia; adición; potencia; volumen ACT; MIN; MAX; FS; TEMP	
Memoria de valores de medición	Memoria de valores de medición: Memoria de curvas: Formato de datos: Configuración de memoria:	1.000.000 puntos 250.000 puntos ACT MIN-MAX FAST (0,5 ms) IN1 Intervalo (p.ej. 5 ms) Puntos por canal (2.000)
Condiciones ambientales	Temperatura ambiente: Temperatura de almacenaje: Error de temperatura: Humedad relativa: Clase de protección: Prueba de caída	0 . . 50 °C -25 °C . . 60 °C 0,02 %/°C <80 % EN 60529 IP 54 (salpicaduras de agua/aceite) IEC 60068-2-32
CE	DIN/EN 61000-6-2 DIN/EN 61000-6-3	

Alimentación de tensión (externa)	11 . . 30 VDC Adaptador de red 110/240 VAC - 15 VDC Adaptador de coche (12/24 VDC)
Batería	NiMH Tiempo de carga 180 minutos Duración de funcionamiento 8 horas
Carcasa	Poliamida 235 x 106 x 53 mm peso 530 g
Software de PC SensoWin	Leer/representar datos de medición y analizar en el PC Leer/editar los ajustes del aparato Cargar los ajustes del aparato de la biblioteca al aparato de medición

13. Descripción de las funciones de memoria

Configuración memoria de valores de medición		
DATA FORMAT	ACT	Dentro del intervalo de memorización (p.ej. 50 ms) sólo se escribe en la memoria el valor de medición actual correspondiente (ACT).
	MIN-MAX	Dentro del intervalo de memorización (p.ej. 50 ms) se escribe en la memoria el valor MIN y el valor MAX correspondientes.
REC CONFIG	2.000 PTS	El tiempo de memorización seleccionado se distribuye automáticamente en un número fijo de intervalos de memorización por canal. Ejemplo: Tiempo de memorización 10 min = 600 s Longitud del intervalo = 600 s ÷ 2.000 = 300 ms
	REC RATE	Definición de un intervalo de memorización individual (p.ej. 5 ms). El aparato de medición comprueba a partir de los ajustes (DATA FORMAT/ REC RATE) si es necesario cambiar el tiempo de memorización seleccionado. Ejemplo: Tiempo de memorización 100 h/conflicto tiempo de memorización
FAST MODE		Sólo se guardan con IN1 valores de medición ACT con un intervalo de memorización fijo de 0,5 ms. Todas las entradas restantes (INx) no están en función.

Selección función de memoria: Sensor de presión/temperatura SCPT **Tiempo de memorización 60 s**				
Función de memoria	**Ajuste DATA FORMAT**	**Ajuste REC CONFIG**	**Memoria de curvas (puntos)**	**Número de valores de medición/ puntos** **p (bar)** **T (°C)**
START/ STOP	ACT MIN-MAX	–	120.000	p (bar) = 15.000 T (°C) = 15.000
AUTO/ MANUAL TRIGGER	ACT MIN-MAX	2.000 PTS	250.000	p (bar) = 2.000 T (°C) = 60
		REC RATE (5 ms)	250.000	p (bar) = 12.000 T (°C) = 60

Particularidades en el modo START/STOP:	
START STOP	En este modo no son relevantes los ajustes en REC CONFIG. Cuando se inicia la memorización de valores de medición no se conoce aún el tiempo de memorización. Por ello, el intervalo de memorización se optimiza dinámicamente, adaptándose de forma correspondiente, durante la memorización de los valores de medición. La memoria de curvas tiene una capacidad de aprox. 120.000 valores de medición. Cuando se conectan sensores SCPT se guardan los valores de medición de la temperatura y de la presión con el mismo intervalo de memorización.

1. Determinación del número de intervalos de memorización:			
Canales	**Magnitud de medición**	**Número valores de medición**	**Número intervalos de memorización**
			120.000 ÷ Valores de medición = Número intervalo de memorización
Ejemplo ①			
4 (SCPT)	°C	4	
	bar	4	
	Valores de medición	8	120.000 ÷ 8 = 15.000
Ejemplo ②			
2 (SCPT)	°C	2	
	bar	2	
1 (SCFT)	L/min.	1	
1 (SCRPM)	RPM	1	
	Valores de medición	6	120.000 ÷ 6 = 20.000

2. Determinación de la longitud del intervalo de memorización:			
Hora	**Canales**	**Número valores de medición**	**Longitud intervalo de memorización**
Ejemplo ①			
60 s 60.000 ms	4 (SCPT)	8	60.000 ÷ 15.000 = 4 ms
30 s 30.000 ms	4 (SCPT)	8	30.000 ÷ 15.000 = 2 ms
Ejemplo ②			
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	60.000 ÷ 20.000 = 3 ms
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	6	40.000 ÷ 20.000 = 2 ms

Particularidades en el modo AUTO/MANUAL TRIGGER:	
AUTO/MANUAL TRIGGER	En este modo son relevantes los ajustes en REC CONFIG. Cuando se inicia la memorización de valores de medición se conoce el tiempo de memorización. La memoria de curvas tiene una capacidad de 250.000 valores de medición.
REC CONFIG 2.000 PTS	DURATION ÷ 2.000 = Longitud del intervalo de memorización/canal Cuando se conectan sensores SCPT se guardan los valores de medición de la temperatura con un intervalo de memorización de 1 segundo.
REC CONFIG REC RATE	La memorización de los valores de medición se lleva a cabo con el intervalo ajustado (REC RATE). Cuando se conectan sensores SCPT se guardan los valores de medición de la temperatura con un intervalo de memorización de 1 segundo.

1. Determinación de la longitud del intervalo de memorización para REC CONFIG 2000 PTS:				
Hora	**Canales**	**Magnitud de medición**	**Número valores de medición**	**Longitud intervalo de memorización**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 2.000	60.000 ÷ 2.000 = 30 ms
Puntos de medición memorizados			8.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 2.000	30.000 ÷ 2.000 = 15 ms
Puntos de medición memorizados			8.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 2.000 1 x 2.000 1 x 2.000	60.000 ÷ 2.000 = 30 ms
Puntos de medición memorizados			8.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 2.000 1 x 2.000 1 x 2.000	40.000 ÷ 2.000 = 20 ms
Puntos de medición memorizados			8.080	

2. Determinación del número de intervalos de memorización para REC CONFIG/REC RATE 5 ms:				
Hora	**Canales**	**Magnitud de medición**	**Número valores de medición**	**Longitud intervalo de memorización**
60 s 60.000 ms	4 (SCPT)	°C bar	4 x 60 4 x 12.000	60.000 ÷ 5 = 12.000
Puntos de medición memorizados			48.240	
30 s 30.000 ms	4 (SCPT)	°C bar	4 x 30 4 x 6.000	30.000 ÷ 5 = 6.000
Puntos de medición memorizados			24.120	
60 s 60.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 60 2 x 12.000 1 x 12.000 1 x 12.000	60.000 ÷ 5 = 12.000
Puntos de medición memorizados			48.120	
40 s 40.000 ms	2 (SCPT) 1 (SCFT) 1 (SCRPM)	°C bar L/min RPM	2 x 40 2 x 8.000 1 x 8.000 1 x 8.000	40.000 ÷ 5 = 8.000
Puntos de medición memorizados			32.080	

Parker Hannifin GmbH
Tube Fittings Division Europe
Postfach 12 02 06, 33652 Bielefeld
Am Metallwerk 9, 33659 Bielefeld
Tel. +49 521/40 48-0
Fax +49 521/40 48-42 80
E-Mail: Ermeto@parker.com
http://www.parker.com

Technische Änderungen vorbehalten/Subject to alteration/Sous réserve de modification techniques/
Sogetto a modifiche/Con riserva di apportare tecniche